



2017

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

Emilda B. Rivers, Deputy Director

National Center for Science and Engineering Statistics
National Science Foundation

www.nsf.gov/statistics

Government-University-Industry Research Roundtable

March 29, 2017



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.

InfoBrief

NCSES National Center for Science and Engineering Statistics



May 2016 ■ NSF 16-312

Federal Science and Engineering Obligations to Universities and Colleges Increase by 6% in FY 2014

by Michael Yamaner¹

In FY 2014, federal agencies obligated \$30.8 billion to 996 academic institutions for science and engineering (S&E) activities, a 6% increase in current dollars from the \$29.1 billion obligated to 995 academic institutions in FY 2013. This is the first increase in S&E funding to academic institutions since FY 2009. These statistics are from the Survey of Federal Science and

facilities and equipment for instruction in S&E; fellowships, traineeships, and training grants; general support for S&E; and other S&E activities (table 1).


Federal academic R&D obligations increased by \$1.5 billion (6%) between FY 2013 and FY 2014. Four of the five remaining categories showed increased



showing the second largest increase (\$0.4 billion) and R&D plant the third largest (\$89 million). Other S&E activities decreased 17% (\$0.3 billion in FY 2014) (table 1).

Agency Sources for Academic S&E Support

Collectively, the Department of Health and Human Services (HHS), NSF, and

Science and Engineering Doctorates



DATA REPORT TECHNICAL NOTES SURVEY DESCRIPTION RELATED RESOURCES HOW DO I...  

Report Home prev next

What influences the path to the doctorate?

Chart | Data | Download

Highest parental educational attainment: 1994–2014

Percent doctorate recipients

At least one parent with advanced degree

Neither parent with more than high school diploma

At least one parent with bachelor's degree

Parental education: Overview

The parents of recent doctorate recipients are better educated than the parents of earlier cohorts of doctorate recipients. The share of doctorate recipients from families in which neither parent has earned more than a high school degree is declining, and the proportion of families in which at least one parent has earned a bachelor's degree or higher continues to climb, rising from 55% of doctorate recipients in 1994 to 69% in 2014.

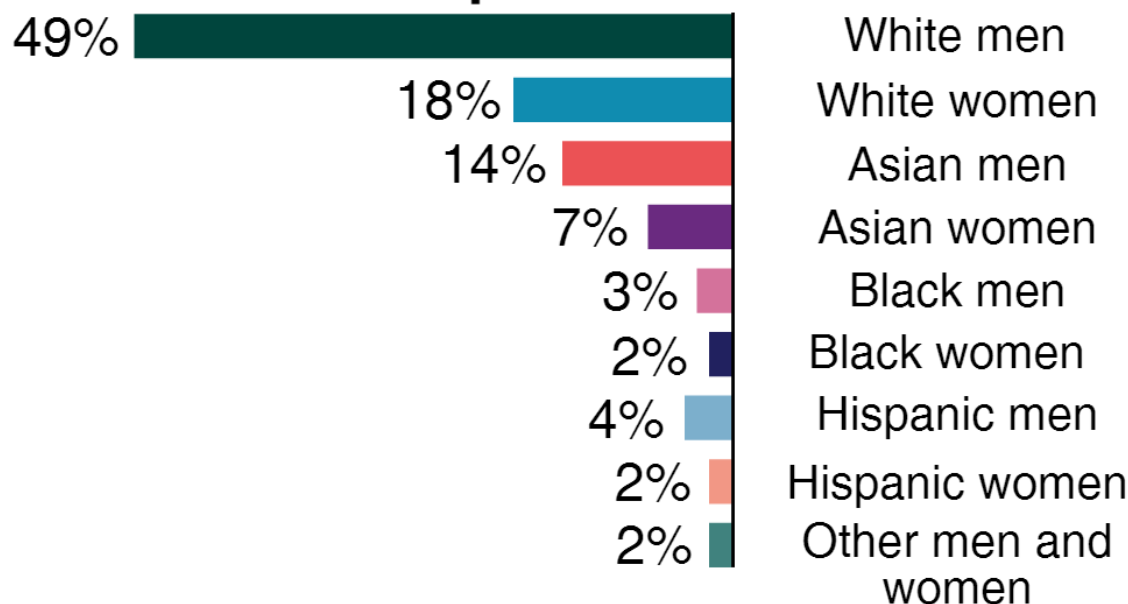
Previous Next

WMPD in brief

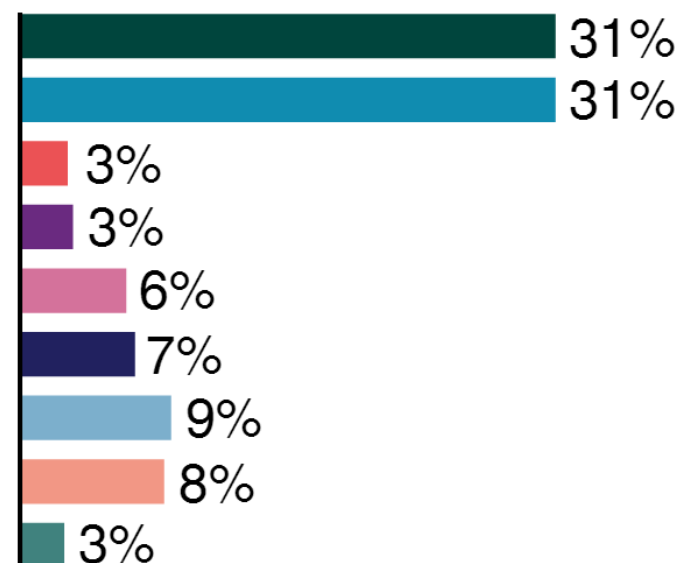
- Federal government's most comprehensive look at the participation of women, minorities and persons with disabilities in science and engineering education and employment.
- Serves as a statistical abstract with no policy or program recommendations or endorsements.
- Uses data from surveys conducted 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



U.S. Population



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.

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.

U.S. general population

31%



S&E bachelor's recipients

21%



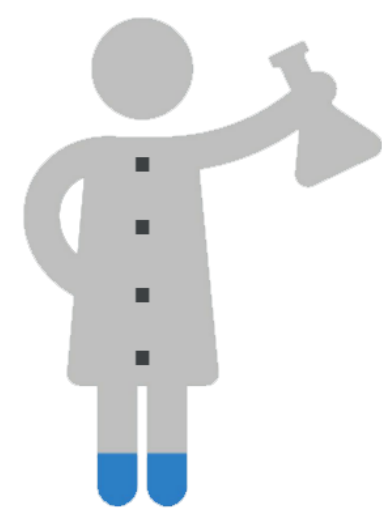
S&E doctorate recipients

13%



Employment in S&E occupations

11%



Field of degree: Women

2014: High participation



Psychology

77% of bachelor's degrees
79% of master's degrees
73% of doctorate degrees



Biosciences

58% of bachelor's degrees
57% of master's degrees
53% of doctorate degrees



Social Sciences

55% of bachelor's degrees
57% of master's degrees
51% of doctorate degrees

2014: Low participation



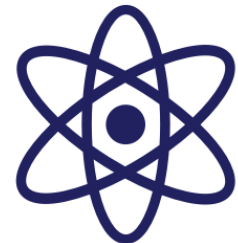
Economics

31% of bachelor's degrees
41% of master's degrees
34% of doctorate degrees



Computer Sciences

18% of bachelor's degrees
29% of master's degrees
21% of doctorate degrees



Physics

19% of bachelor's degrees
23% of master's degrees
19% of doctorate degrees



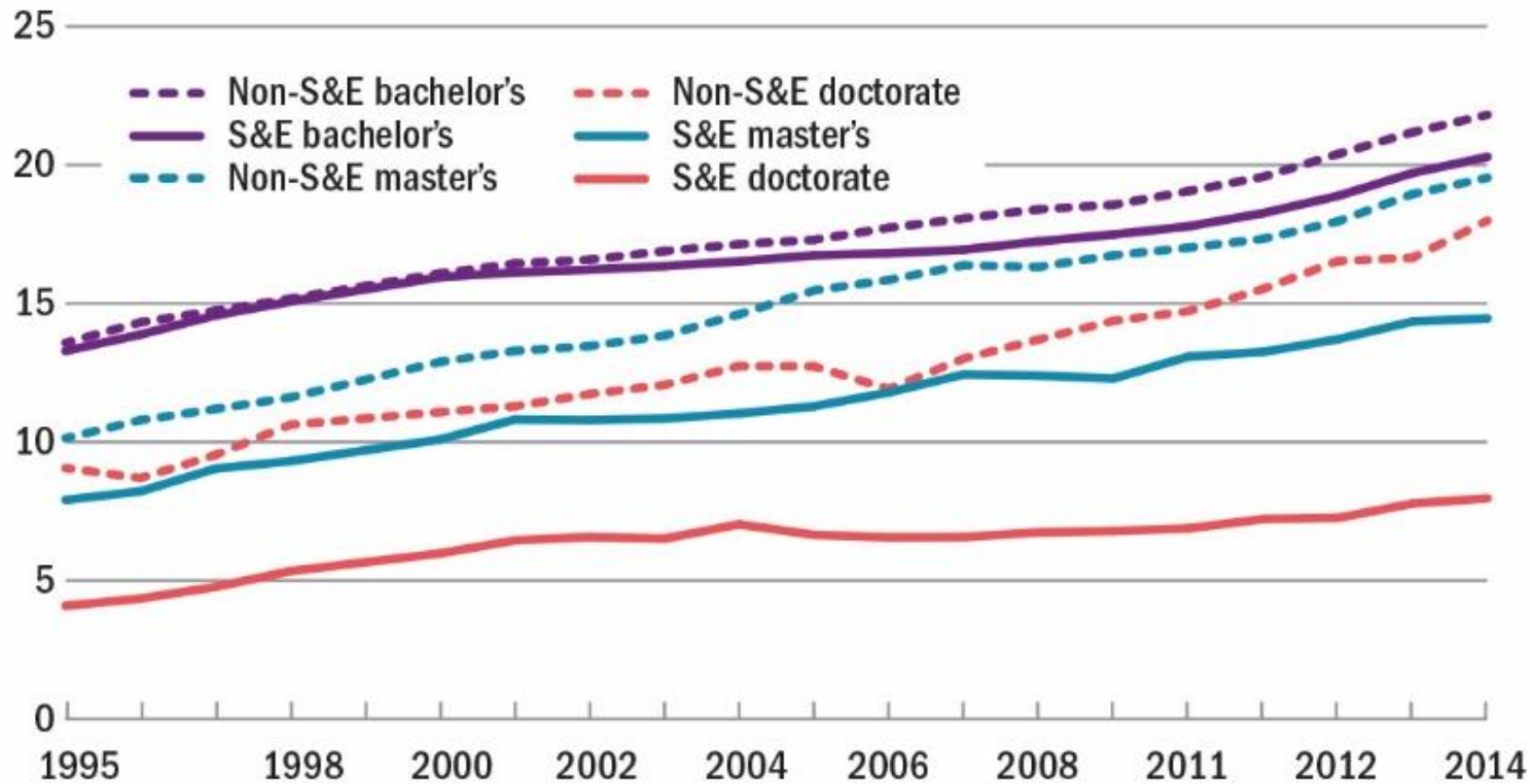
Engineering

20% of bachelor's degrees
24% of master's degrees
23% of doctorate degrees

Field of degree: Minorities

Degrees earned by underrepresented minorities: 1995-2014

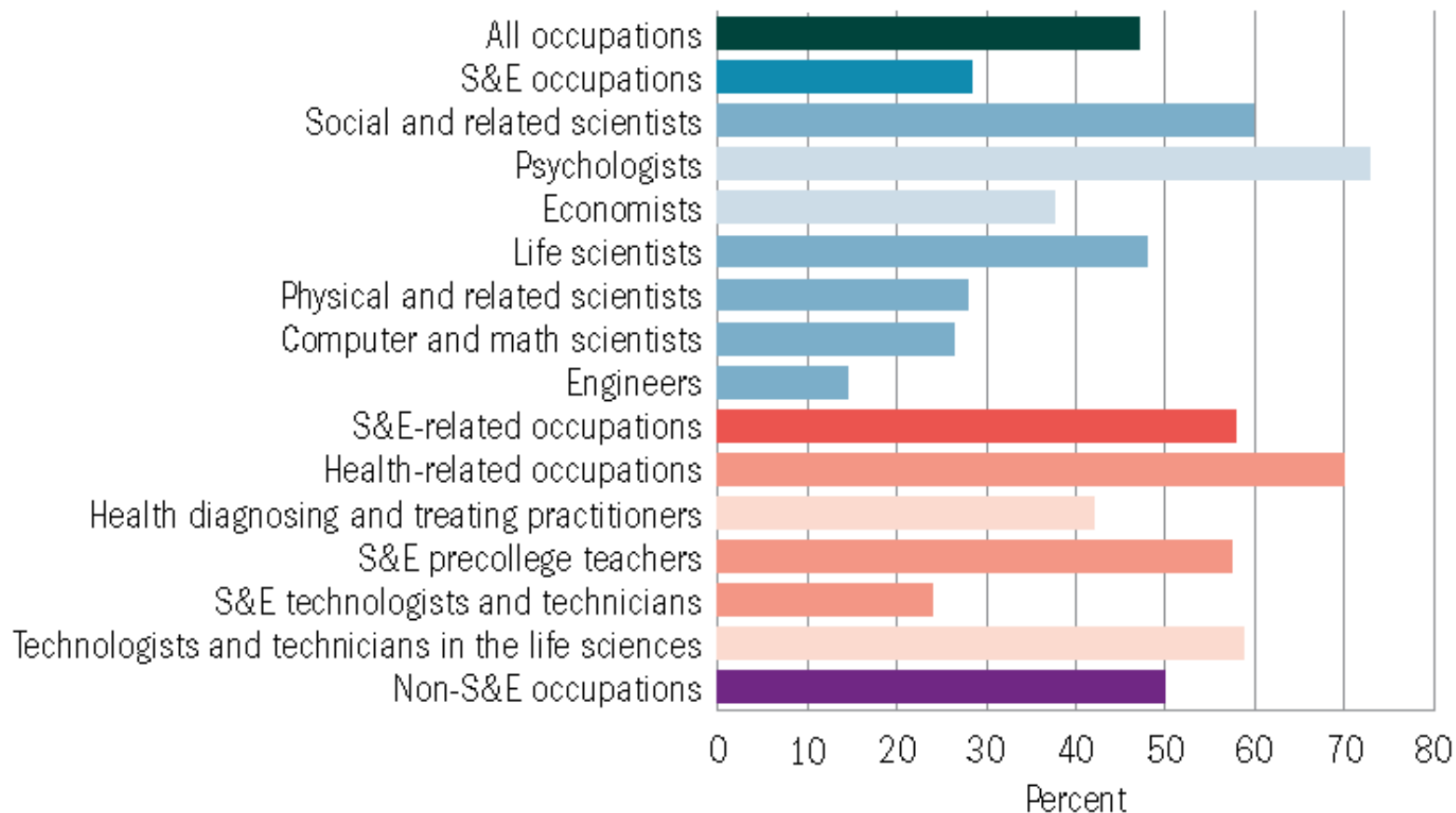
Percent



NOTE: Data not available for 1999.

Occupation

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



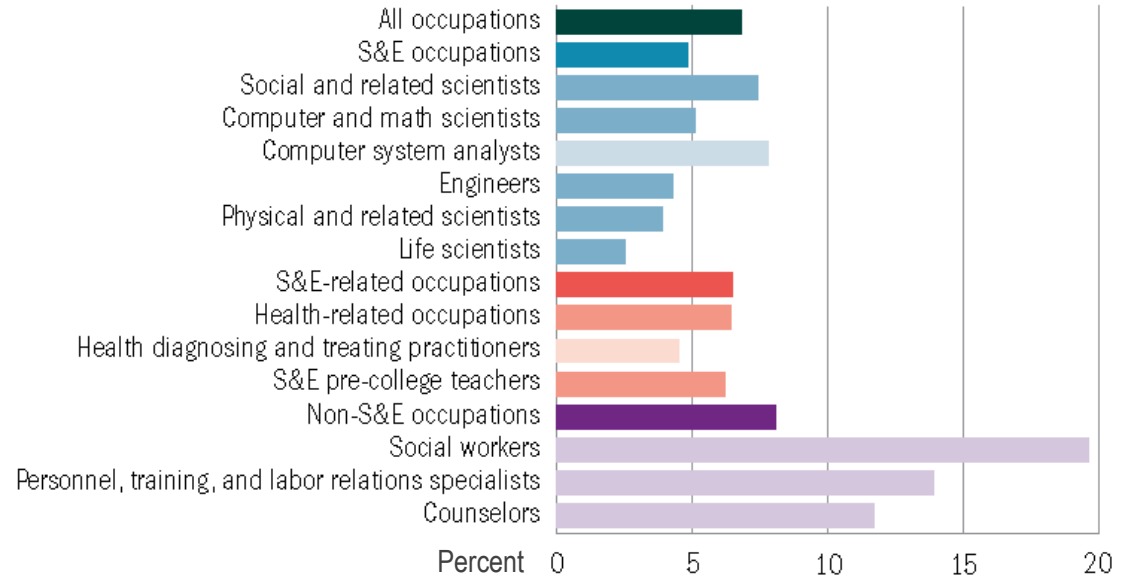
Employment as a percentage of selected occupations: 2016

Employed Hispanic scientists and engineers



NOTE: Hispanic may be any race.

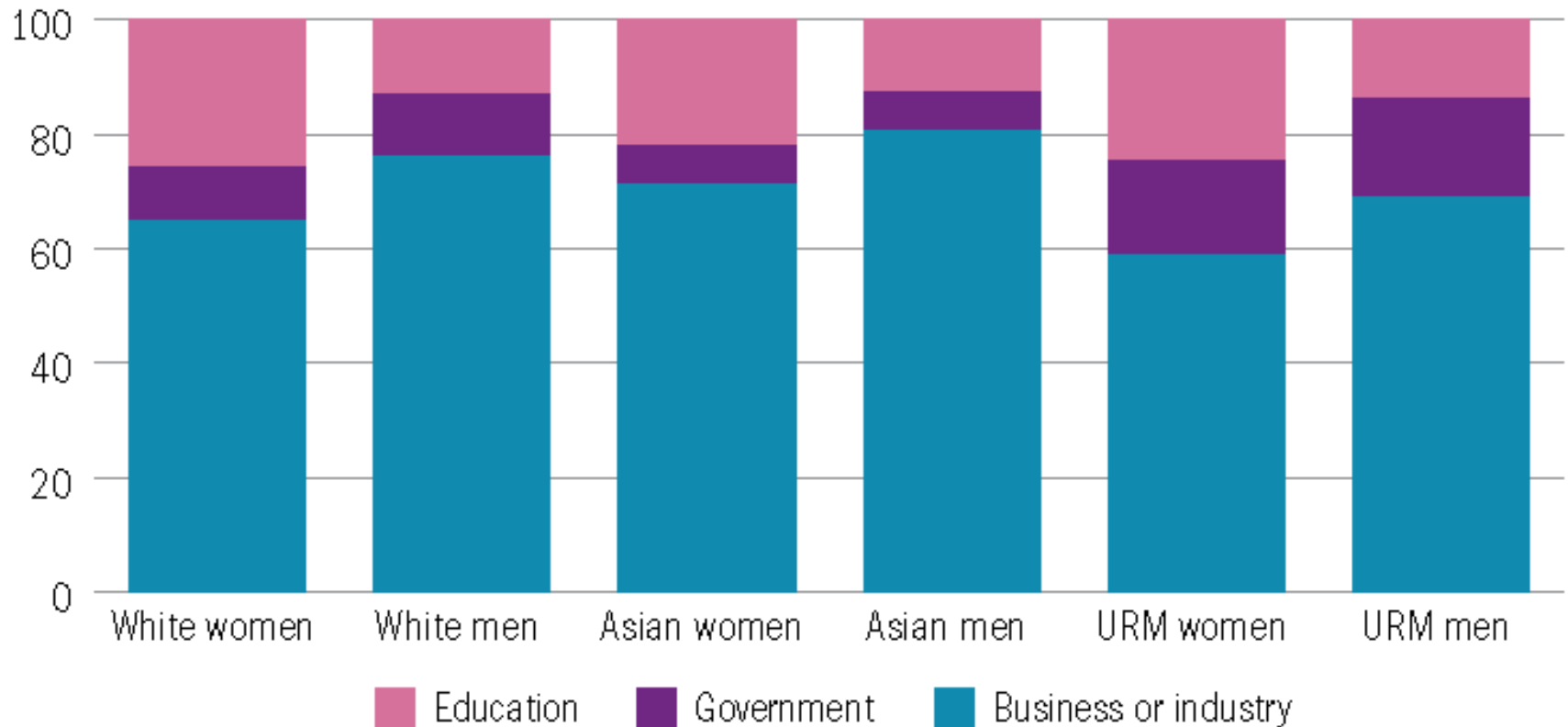
Employed black scientists and engineers



Employment sectors of scientists and engineers

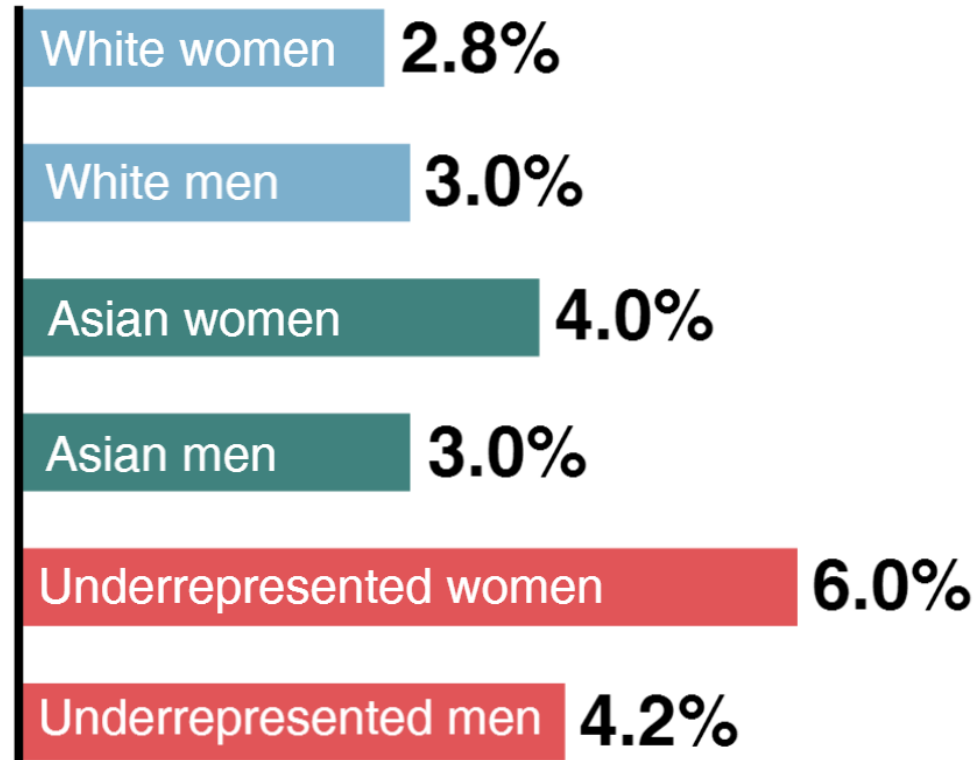
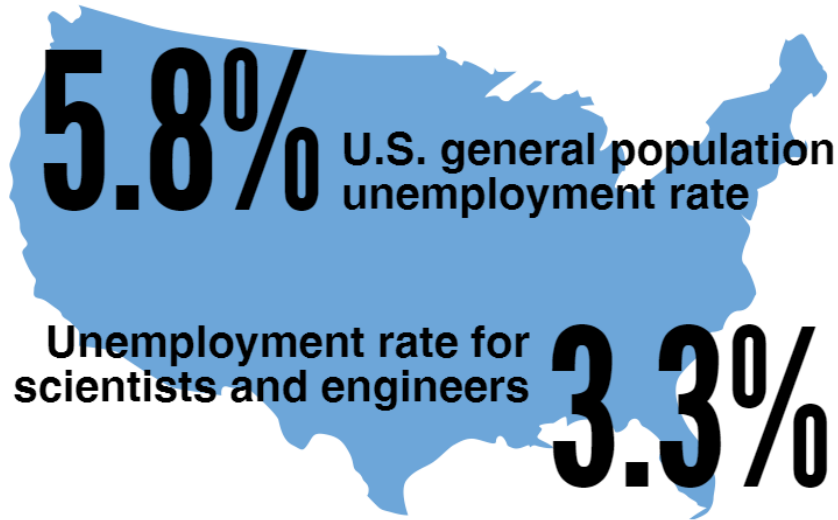
By sex, race and ethnicity

Percent



URM = underrepresented minority.

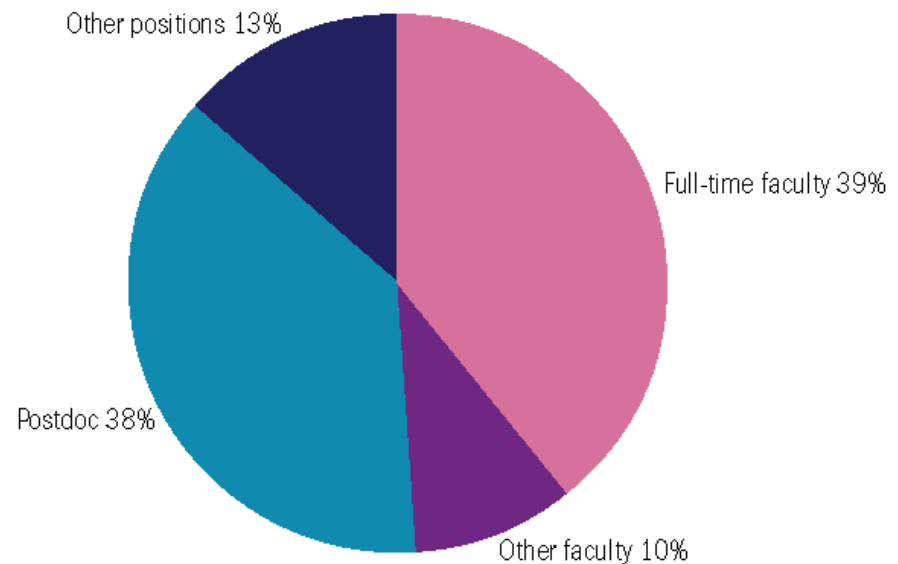
Unemployment rate among scientists and engineers: 2015



Early career doctorate holders

- New addition: pilot data from NSF's Early Career Doctorates Survey.
- 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%)

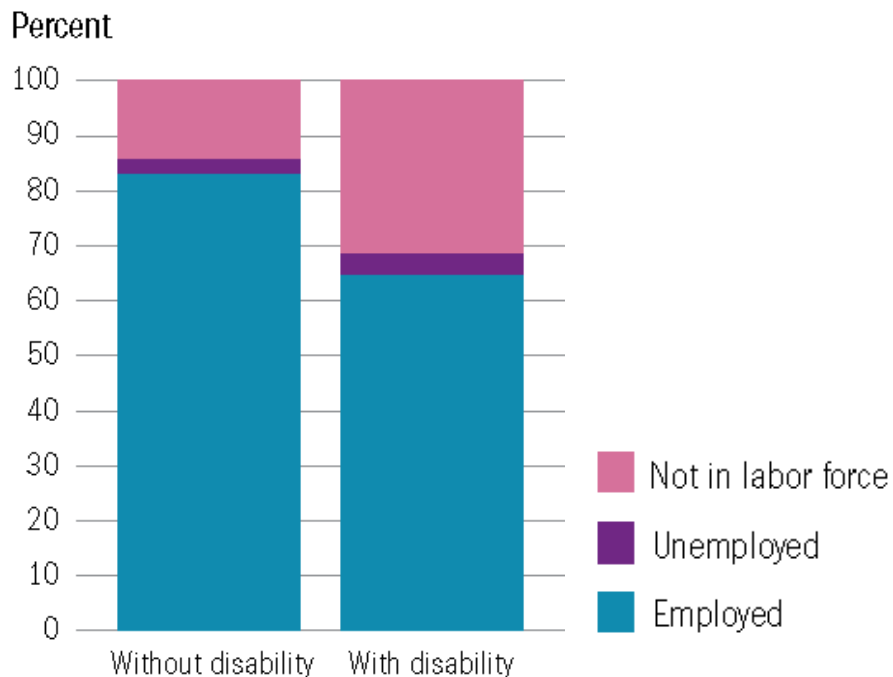
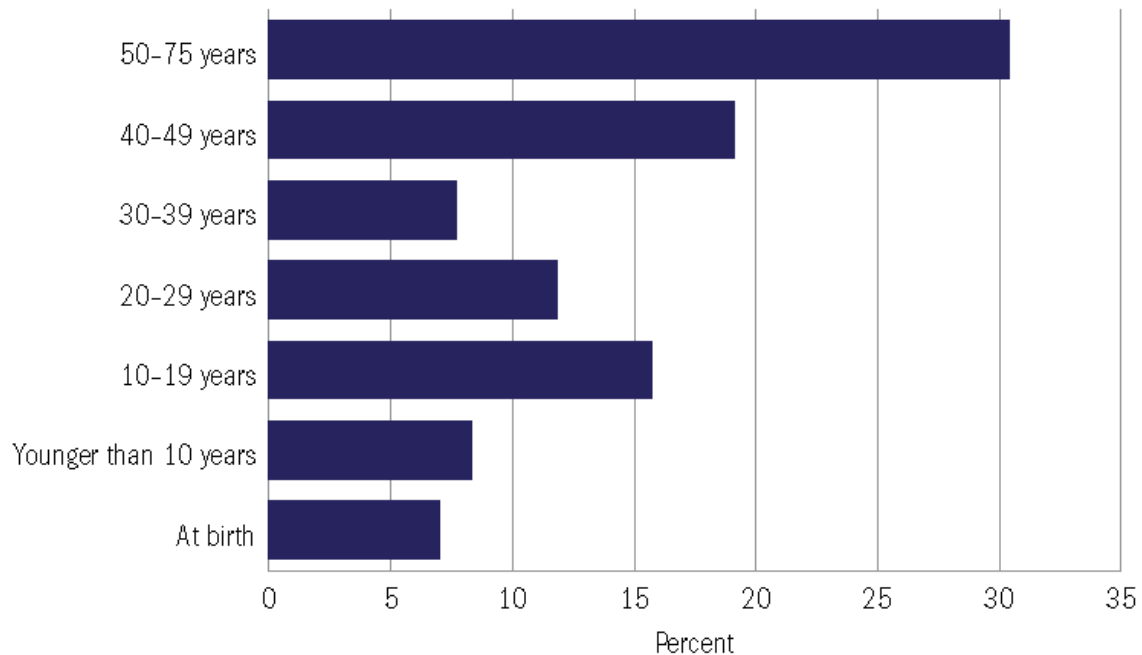
Academic employment among early career doctorate holders with S&E degrees



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.

Age at onset of disability among scientists and engineers: 2015



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

Accessing WMPD



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

Digest Data Technical Notes Additional Resources Citation Downloads How Do I...



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.

Digest

Interactive
Presentation

Data

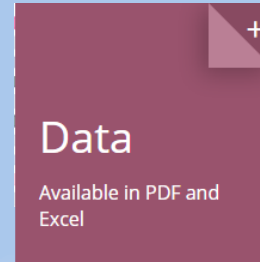
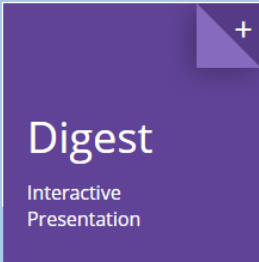
Available in PDF and
Excel

Additional
Resources

How Do I...



<https://www.nsf.gov/statistics/wmpd>



- About this report
- Introduction**
- Enrollment
- Field of degree: Women
- Field of degree: Minorities
- Field of degree: Women, men, and racial and ethnic groups
- Occupation
- Employment status
- Early career doctorate holders
- Data sources
- Glossary and Key to acronyms

Introduction

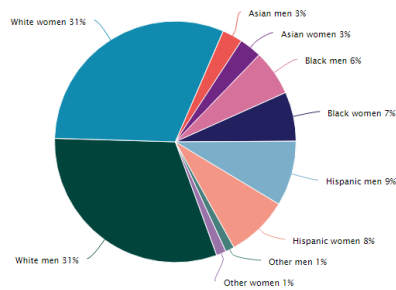
The representation of certain groups of people in science and engineering (S&E) education and employment differs from their representation in the U.S. population. Women, persons with disabilities, and three racial and ethnic groups—blacks, Hispanics, and American Indians or Alaska Natives—are underrepresented in S&E. While women have reached parity with men among S&E degree recipients overall, they constitute proportionally 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 rooted in differences in precollege course taking, participation in S&E higher education, and overall educational attainment.

Women and underrepresented minorities constituted a substantial portion of the U.S. population ages 18 to 64 years in 2014. Women were about 50% of this population; Hispanics, 17%; blacks, 13%; Asians, 6%; and other racial and ethnic groups more than one race and are not Hispanic, 2%. 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

Chart View Table View



Data Tables

Tables are updated as new information becomes available and are current as of the date shown on the list.

Download All Tables [\(9.9 MB\)](#)

Filter By: **Disability** **Minority Women** **Race and Ethnicity** **Sex**

Table	U.S. demographics	Excel	PDF	Posted
resident population: 2014				
1-1	by age and sex	Excel	PDF	6/2016
1-2	by sex, race or ethnicity, and age	Excel	PDF	6/2016
U.S. civilian noninstitutionalized population: 2014				
1-3	by age, disability status, type of disability, and sex	Excel	PDF	6/2016

Table	Undergraduate enrollment	Excel	PDF	Posted
by citizenship, ethnicity, race, sex, and enrollment status				
2-1	all institutions: 2004–14	Excel	PDF	8/2016
2-2	first-time, first-year at all institutions: 2004–14	Excel	PDF	8/2016
2-3	2-year institutions: 2004–14	Excel	PDF	8/2016
2-4	4-year institutions: 2004–14	Excel	PDF	8/2016
2-5	by institutional control: 2014	Excel	PDF	8/2016
by disability status: 2012				
2-6	by age, institution type, financial aid, and enrollment status	Excel	PDF	1/2015
2-7	by major field of study	Excel	PDF	1/2015
freshman intentions to major in S&E fields: 2014				
2-8	by race or ethnicity, and sex	Excel	PDF	6/2016
engineering				

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:

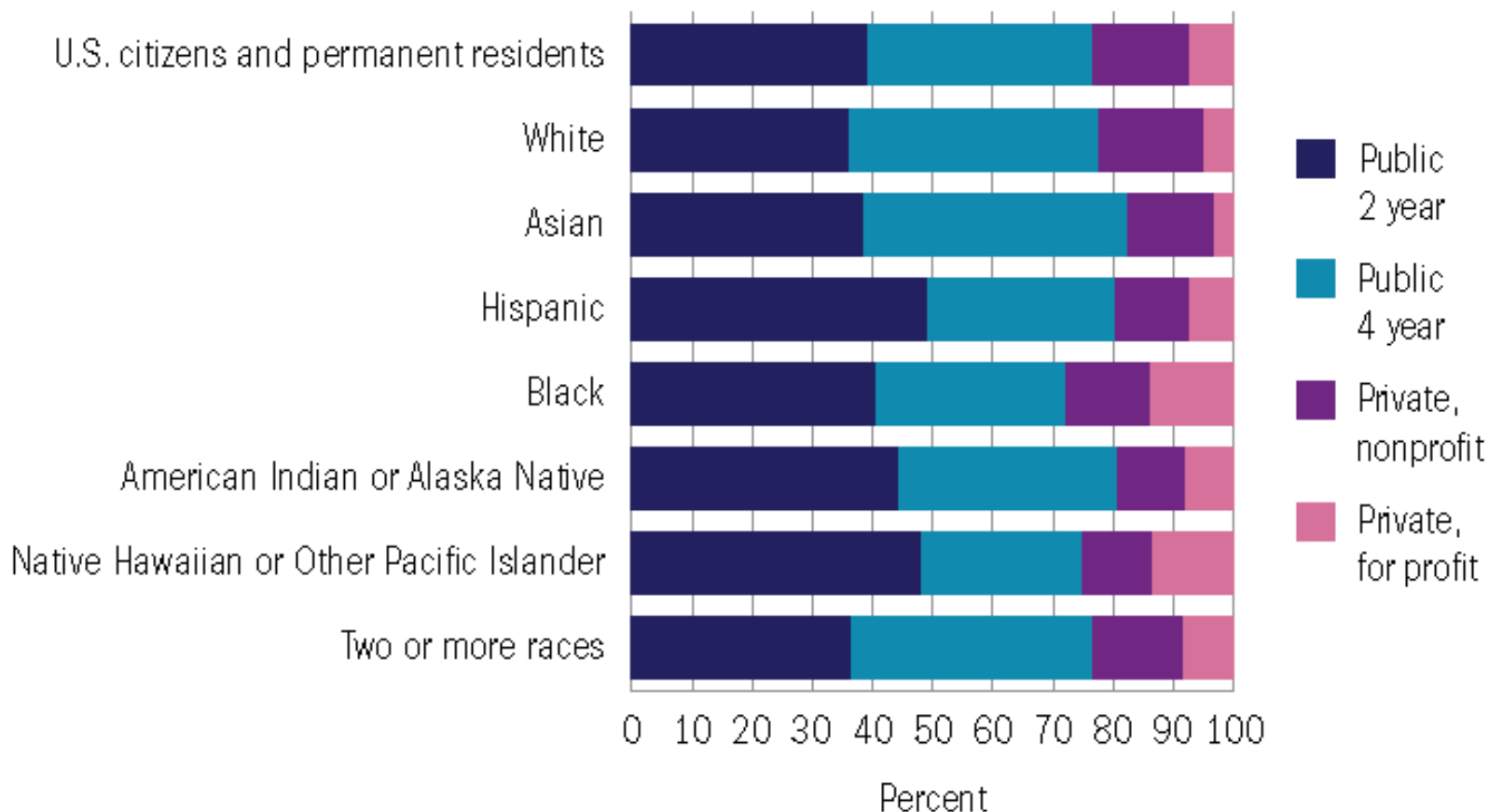
- Katherine Hale, senior science resource analyst (general inquiries)
khale@nsf.gov (703) 292-7786
- Stanley Dambroski, public affairs specialist (media inquiries)
sdambros@nsf.gov (703) 292-7728

Q&A session: NCSES staff

- **Emilda B. Rivers**, deputy director
- **Amy Burke**, senior analyst
- **Jaquelina C. Falkenheim**, senior analyst
- **Katherine Hale**, senior analyst
- **Beethika Khan**, program director
- **Robert Margetta**, public affairs specialist
- **Peter Muhlberger**, senior analyst

Appendix

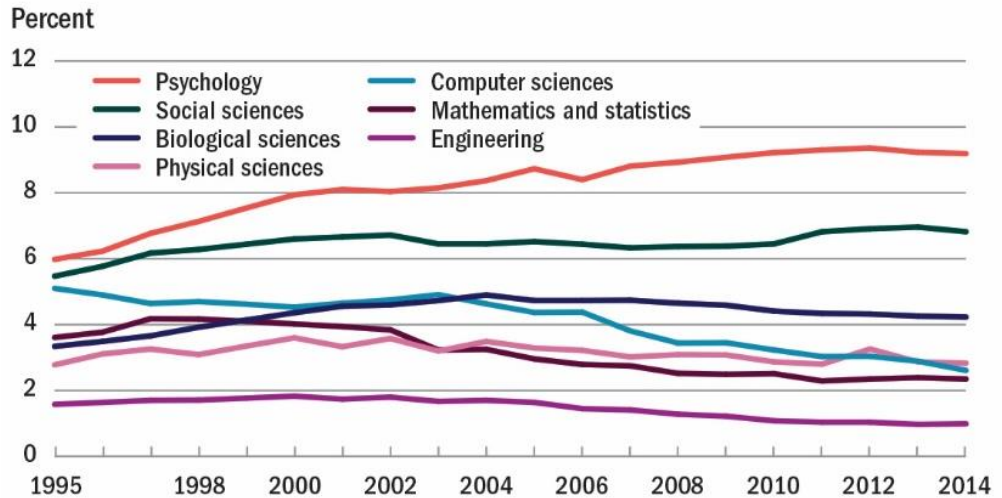
Undergraduate enrollment by type of school: 2014



NOTE: Hispanic may be any race.

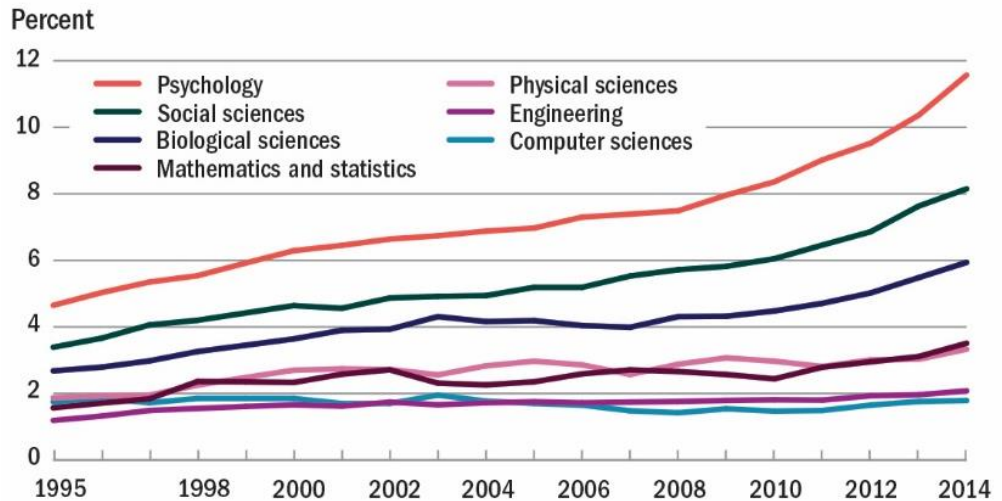
Science and engineering bachelor's degrees

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.

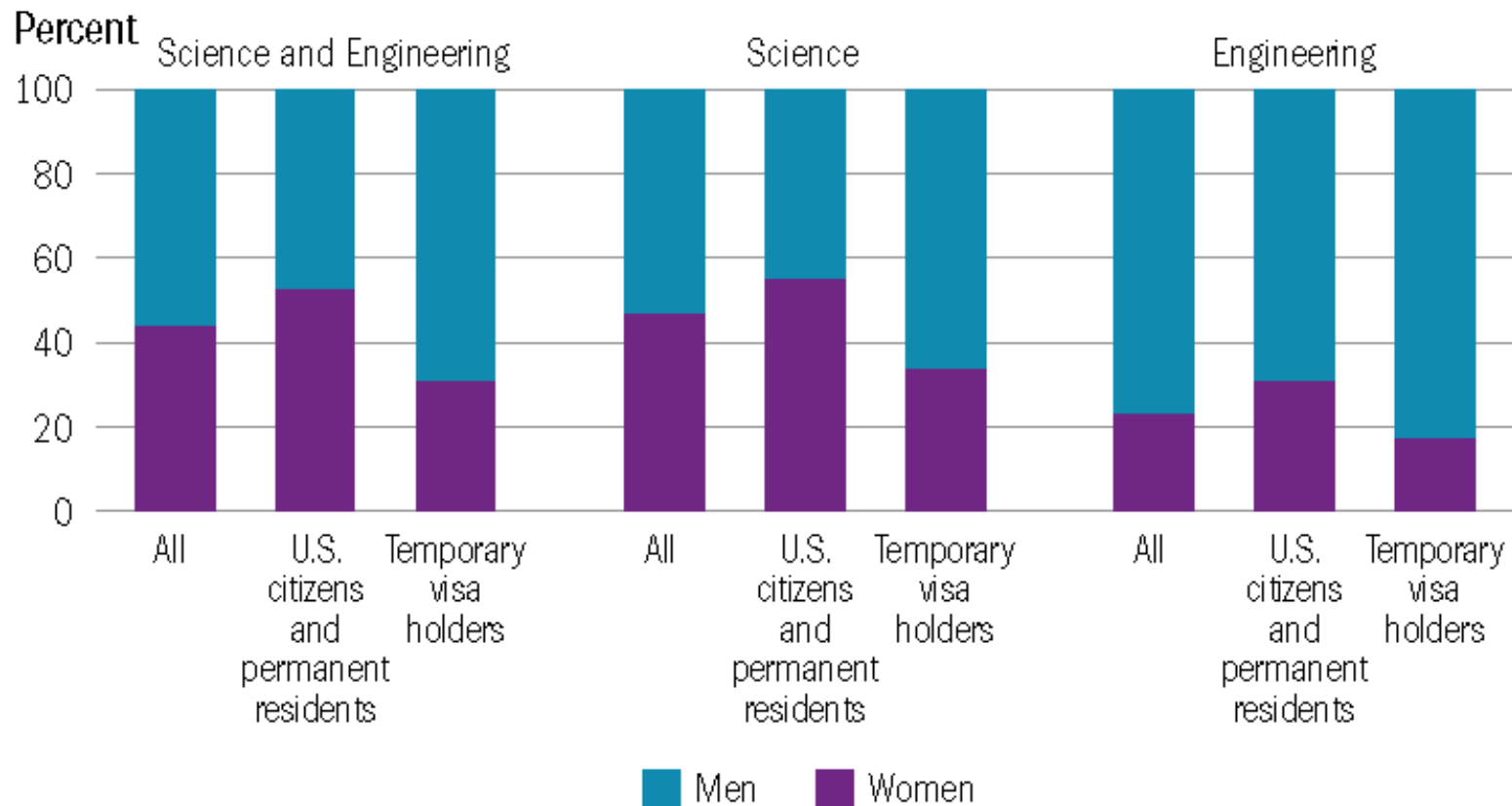
Field of degree: Women, men and racial and ethnic groups

- 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



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.