

# Women, Minorities, and Persons with Disabilities in Science and Engineering: **2013**

National Center for Science and Engineering Statistics  
Directorate for Social, Behavioral and Economic Sciences

National Science Foundation





# Women, Minorities, and Persons with Disabilities in Science and Engineering: **2013**



## About This Report

**W**omen, Minorities, and Persons with Disabilities in Science and Engineering provides statistical information about the participation of women, minorities, and persons with disabilities in science and engineering education and employment. Its primary purpose is to serve as an information source. It offers no endorsement of or recommendations about policies or programs. National Science Foundation reporting on this topic is mandated by the Science and Engineering Equal Opportunities Act (Public Law 96-516).

This digest highlights key statistics drawn from a wide variety of data sources. Data and figures in this digest are organized into six topical areas—enrollment, field of degree, employment status, occupation, academic employment, and persons with disabilities.

Surveys conducted by the National Center for Science and Engineering Statistics (NCSES) at the National Science Foundation provided a large portion of the data used in this report. NCSES has a central role in the collection, interpretation, analysis, and dissemination of objective data on the science and engineering enterprise.

## Online

Online, the reader is invited to explore trends in greater depth through detailed data tables and interactive graphics ([www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/)). Technical notes and other online resources are provided to aid in interpreting the data. The data tables are available both in portable document format (PDF) and as Excel files for easy viewing, printing, and downloading.

# Contents

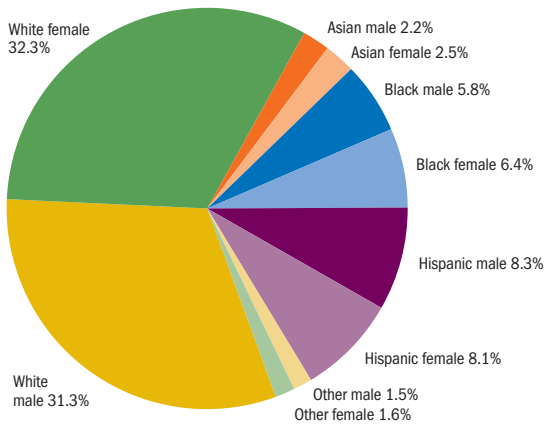
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## Introduction

Women, persons with disabilities, and three racial/ethnic groups—blacks, Hispanics, and American Indians—are considered underrepresented in science and engineering because they constitute smaller percentages of science and engineering degree recipients and of employed scientists and engineers than they do of the population. Asians are not considered underrepresented because they are a larger percentage of science and engineering degree recipients and of employed scientists and engineers than they are of the population. Underrepresentation and overrepresentation of women and racial/ethnic groups may vary by field of study or occupation.

Women were slightly more than half of U.S. residents in 2010. Blacks and Hispanics were 12% and 16%, Asians were 5%, and other racial/ethnic groups combined (American Indians or Alaska Natives, Native Hawaiians or Other Pacific Islanders, multiple race, and other races that are not Hispanic) constituted 3% of the U.S. population in 2010. According to recent Census Bureau projections, minorities will be about half of the resident U.S. population by 2050. The largest growth is projected in the numbers of Hispanics and Asians. Despite increasing numbers, blacks are projected to remain 12% of the population from 2010 to 2050. The number of whites is projected to remain about the same in 2050 as in 2010, and their percentage of the population is projected to decrease.

**Resident population of the United States, by sex and race/ethnicity: 2010**



NOTE: Hispanic may be any race. Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple race.

SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

Hispanic women were the largest group of minority women in the United States in 2010. Hispanic women constituted 8%, black women 6%, and Asian women 3% of the U.S. population. Women of all other minority racial/ethnic groups combined (American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, multiple race, and other races that are not Hispanic) were 2% of the U.S. population. White women made up 32% of the U.S. population.

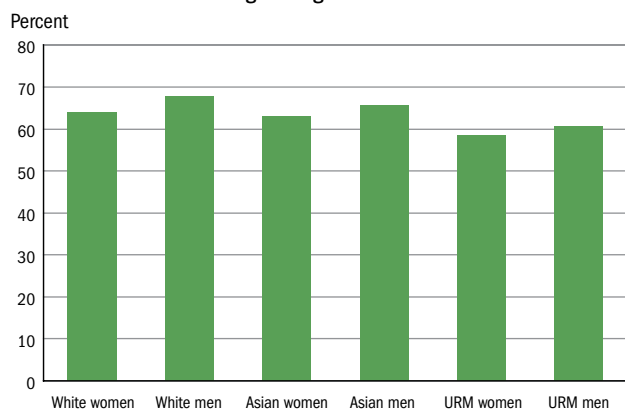
Estimates of the proportion of the population with disabilities vary depending on the definition of the term “disability.” Persons with disabilities may or may not require accommodation, and their disabilities do not necessarily limit their ability to participate in educational experiences or be productive in an occupation. According to the Census Bureau’s 2010 American Community Survey, 12% of the U.S. population has some disability.

Representation of these groups in science and engineering education and employment differs from their representation in the U.S. population. Differences in participation of men and women, various racial/ethnic groups, and persons with and without disabilities are rooted in differences in current and historic participation in science and engineering higher education, as well as differences in educational attainment and in precollege course taking and achievement.

In 1997, to reflect the nation’s increasing diversity, the Office of Management and Budget (OMB) revised the federal guidelines for collecting and tabulating data on race/ethnicity to allow individuals the option to self-identify with more than one race. Survey data collected according to these guidelines can be presented in different ways to capture the detailed distributions of race/ethnicity. A detailed discussion of this topic can be found in <http://www.nsf.gov/statistics/infbrief/nsf12304/>.

**A** Women are less likely than men to enroll full time as undergraduates. Underrepresented minorities (blacks, Hispanics, and American Indians) are less likely than whites and Asians to enroll full time.

**Full-time enrollment among undergraduates: 2010**

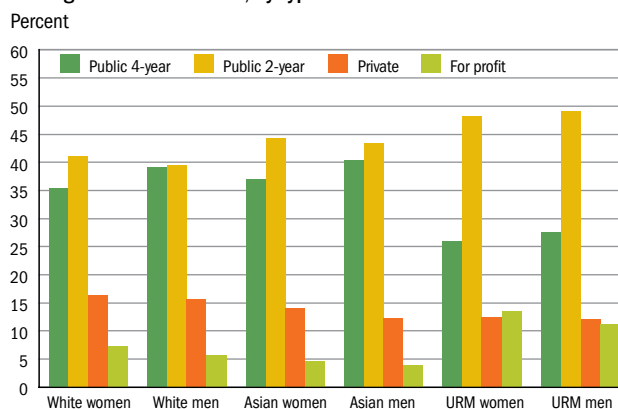


URM = underrepresented minority.

SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**B** Underrepresented minorities enroll in disproportionately higher numbers in public 2-year colleges and, along with women, in for-profit academic institutions.

**Undergraduate enrollment, by type of school: 2010**

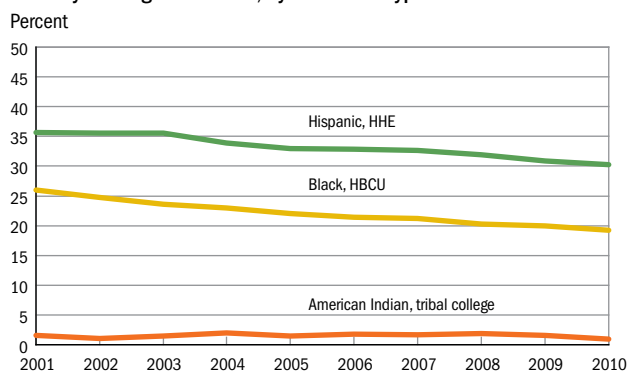


URM = underrepresented minority.

SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**C** Minority-serving academic institutions enroll a substantial fraction of minority undergraduates, although the percentage of blacks earning science and engineering (S&E) bachelor's degrees from HBCUs and the percentage of Hispanics earning S&E bachelor's from high-Hispanic-enrollment institutions has declined over time. Tribal colleges, which mainly offer 2-year degrees, account for only a small percentage of S&E bachelor's degrees to American Indians.

**Minorities earning science and engineering bachelor's degrees at minority-serving institutions, by institution type: 2001-10**

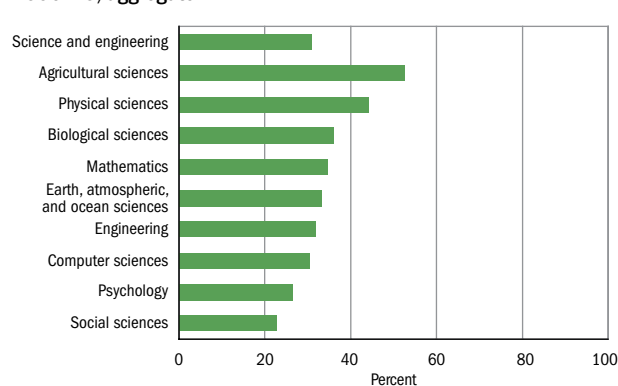


HBCU = historically black college or university; HHE = high Hispanic enrollment.

SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**D** HBCUs are important baccalaureate-origin institutions of future black science and engineering doctorate recipients, especially outside the social sciences.

**Black doctorate recipients with HBCU baccalaureate origins, by field: 2006-10, aggregate**



HBCU = historically black college or university.

SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

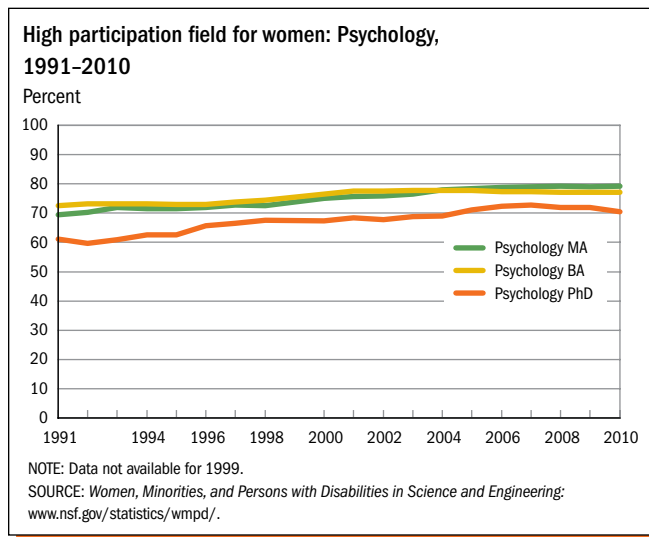
Recent trends in undergraduate enrollment reflect the growth and changing composition of the U.S. college-age population. Most notably, underrepresented minorities are an increasing fraction of undergraduate students, and whites are a decreasing fraction. Among all racial/ethnic groups, more women than men enroll in college.

# Field of Degree

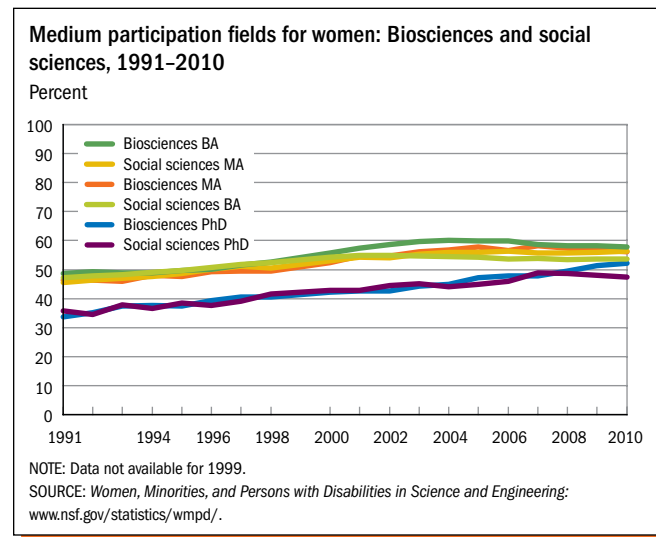
## Women

Overall, more women than men graduate from college with a bachelor's degree; however, men earn a higher proportion of degrees in many science and engineering fields of study. Women's level of participation in these fields varies, but within fields it is consistent over every level of degree.

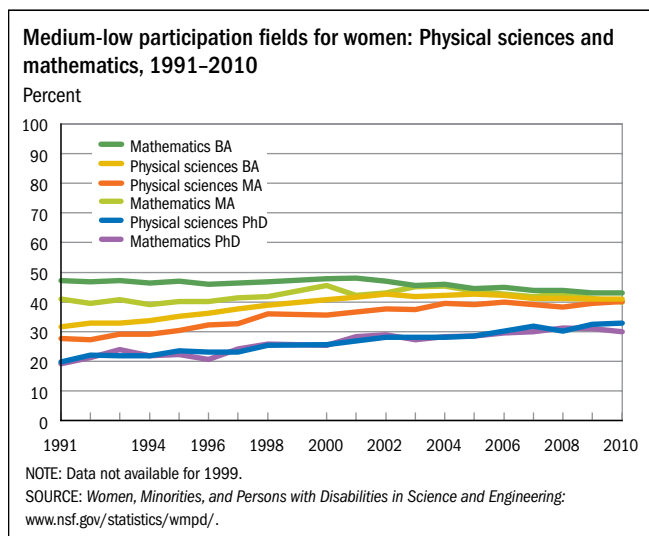
**A** In most fields, women's participation has risen since 1991. The general increase in the share of degrees women earn reflects rising numbers of degrees for women and level or declining numbers earned by men. Women's participation in science and engineering fields is highest in psychology.



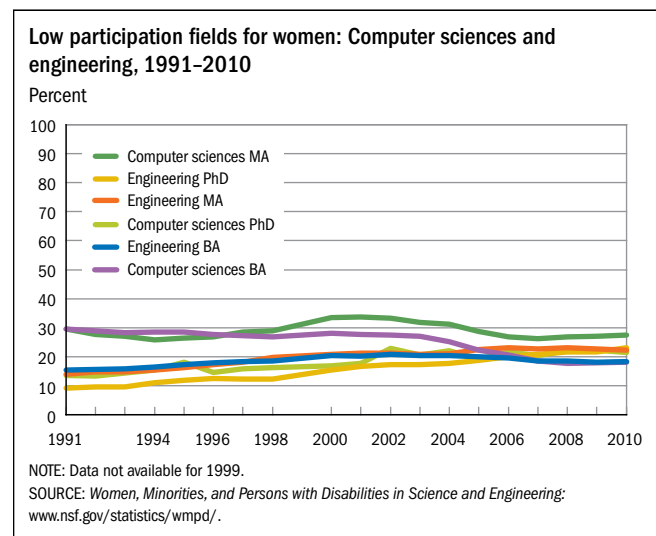
**B** In the 20 years since 1991, women's participation in the social sciences and in biosciences has increased to or beyond parity at most degree levels. In the past 5 years, women's participation has stabilized at the master's and bachelor's levels and in the social sciences at the doctoral level.



**C** Women's shares of degrees in the physical sciences and mathematics remain well below those of men, particularly at the doctorate level. Women's shares of mathematics degrees at the bachelor's and master's levels have declined since the early 2000s, but they have increased at the doctoral level.



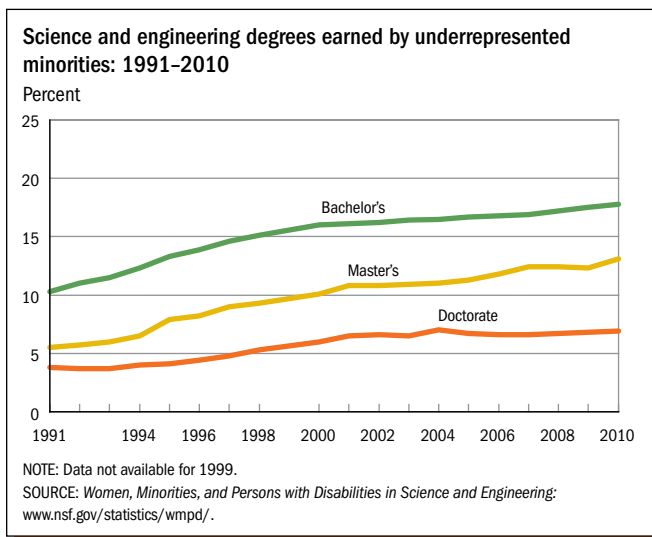
**D** Women's participation in engineering and computer sciences remains below 30%. In the 20 years since 1991, the proportion of women in engineering has increased, mostly at the master's and doctoral levels. Women's participation in computer sciences has increased considerably at the doctoral level (although numbers remain small) but has declined at the bachelor's level.



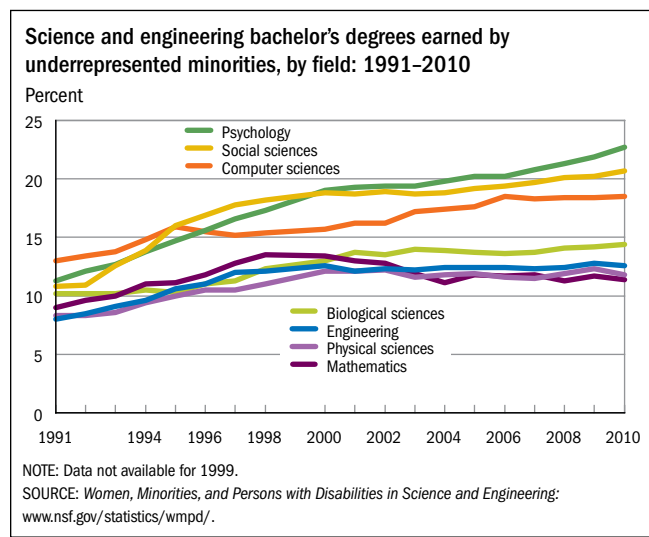


# Field of Degree

**A** Underrepresented minorities' shares of science and engineering bachelor's and master's degrees have been rising over the two decades since 1991, with shares of doctorates in these fields flattening well below 10% after 2000.



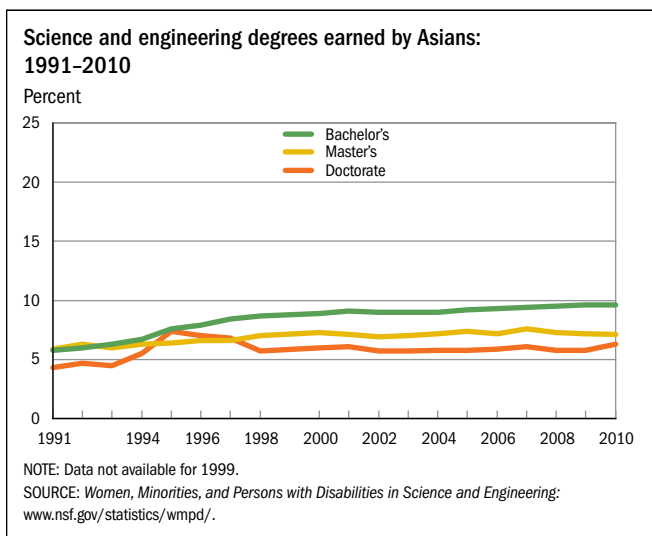
**B** Since 1991, the greatest rise in the share of science and engineering bachelor's degrees earned by underrepresented minorities has been in psychology, the social sciences, and computer sciences. Since 2000, underrepresented minorities' shares in engineering and the physical sciences have been flat, and participation in mathematics has dropped.



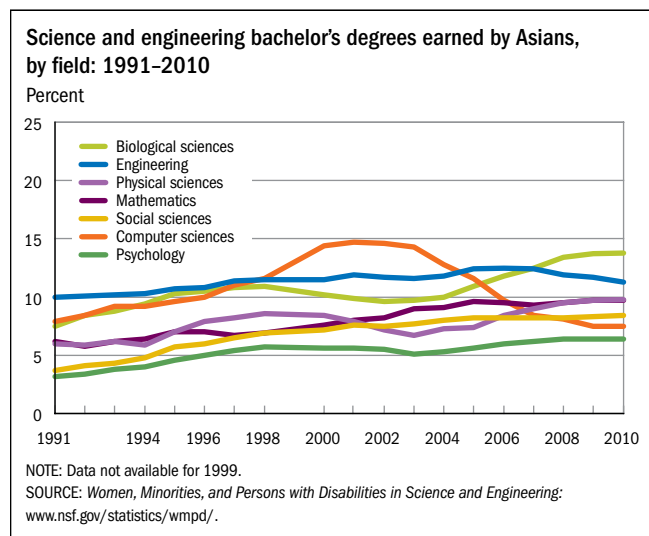
## Minorities

Underrepresented minorities—blacks, Hispanics, and American Indians—are less likely than whites to attend college or to graduate. However, for those who do graduate, the degree patterns are similar to those of whites.

**C** Asian U.S. citizens and permanent residents' shares of all science and engineering degrees are roughly similar for master's and doctoral degrees and slightly higher for bachelor's. Their shares of science and engineering degrees at all levels rose slightly in the 1990s but have been relatively steady over the past decade.



**D** Although Asians' share of science and engineering degrees has been steady over the past decade, major share shifts by field have occurred in bachelor's degrees: most pronounced are a drop in computer sciences and rises in mathematics and in the physical and biological sciences.

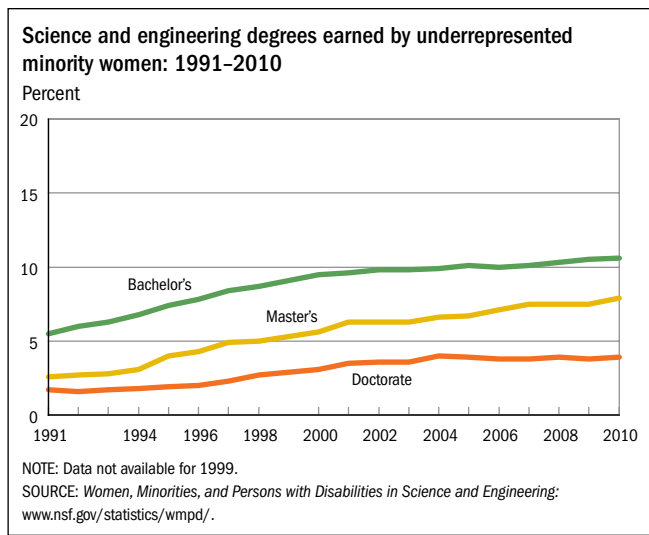


# Field of Degree

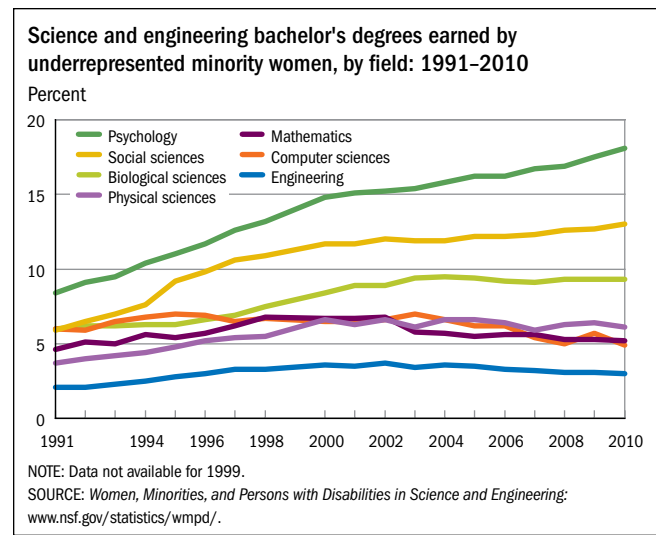
## Minority Women

In 2010, underrepresented minority women earned more than half and white and Asian women earned about half of science and engineering degrees awarded to their respective racial/ethnic groups.

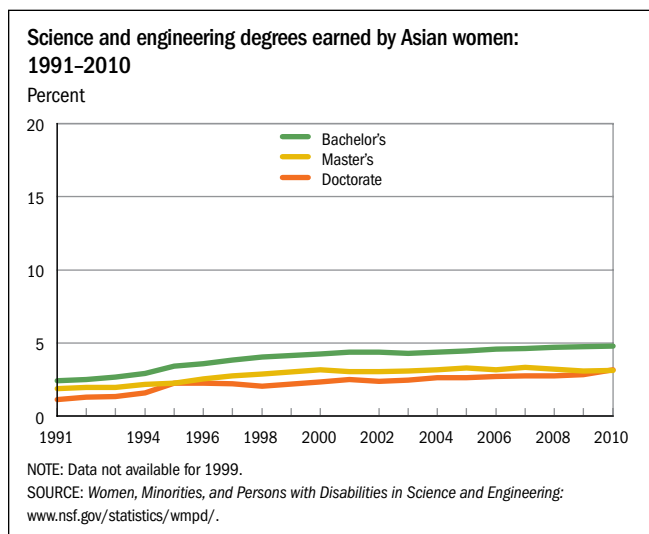
**A** The share of bachelor's degrees earned by underrepresented minority women is larger than their shares of master's or doctoral degrees for the vast majority of science and engineering fields of study.



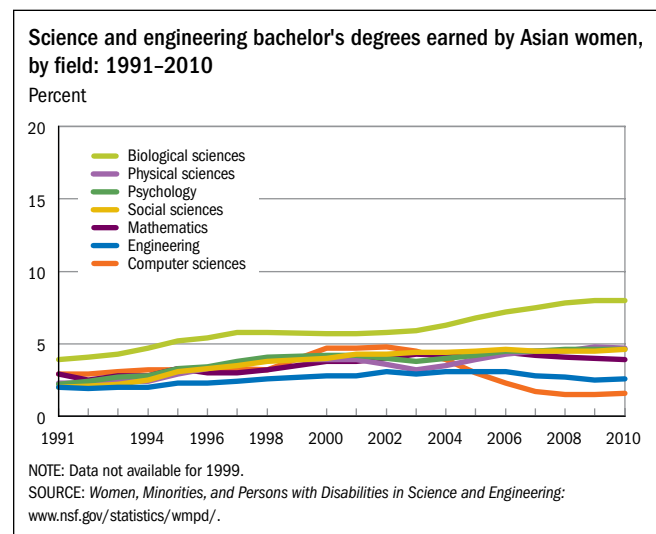
**B** Underrepresented minority women, like women in general, earn higher proportions of bachelor's degrees in psychology and the social sciences than in engineering, computer sciences, and mathematics.



**C** Asian women earn roughly similar proportions of bachelor's, master's, and doctorates. Asian women's shares of science and engineering degrees at all degree levels have grown only slightly in the past decade.

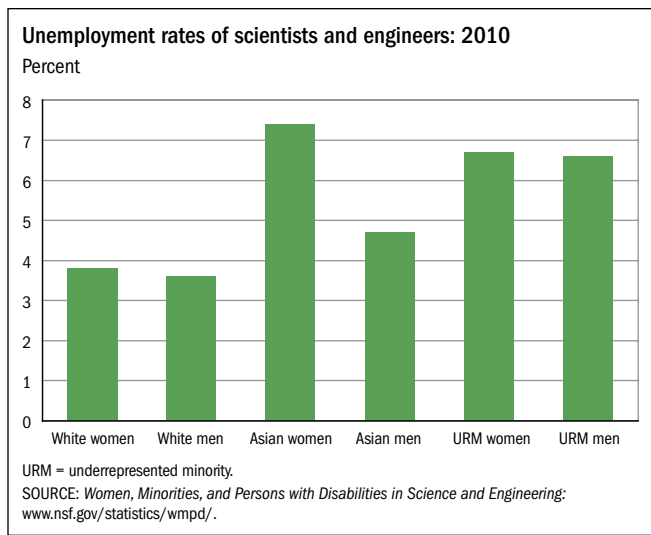


**D** Asian women, like Asians in general, earn higher and growing percentages of bachelor's degrees in the biological sciences and, like women in general, earn lower percentages of bachelor's degrees in computer sciences and engineering.

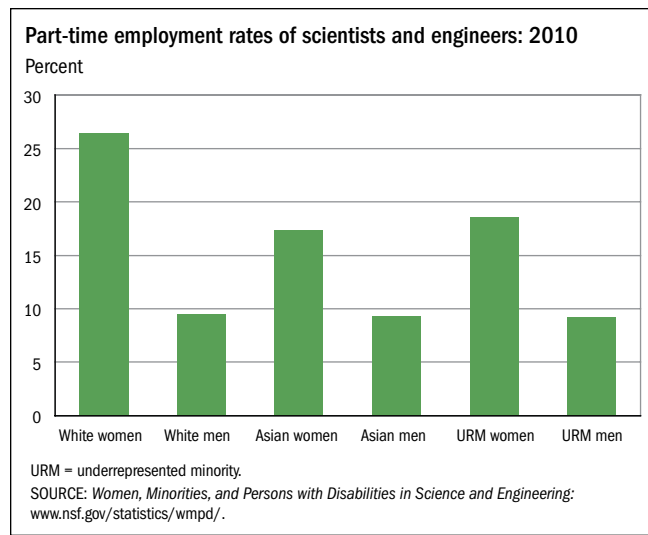


# Employment Status

**A** Unemployment rates are higher for minority scientists and engineers than for white scientists and engineers, and the rate is higher for Asian female than for Asian male scientists and engineers.

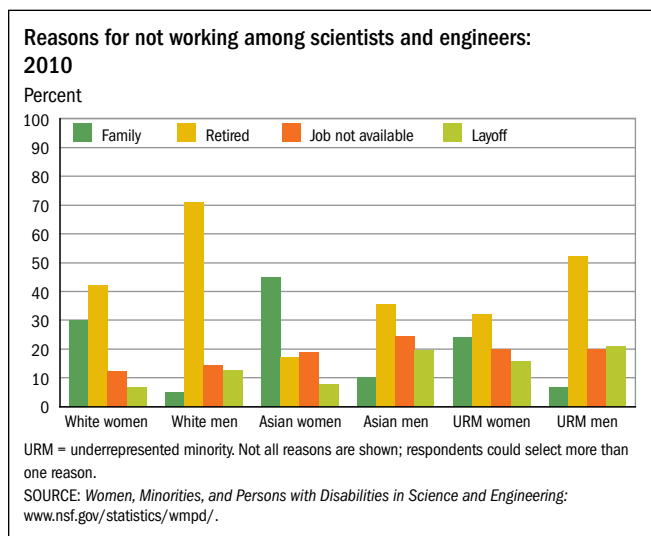


**B** Among those employed, a higher percentage of female than of male scientists and engineers in all racial/ethnic groups are employed part time. White women are the most likely to be employed part time.

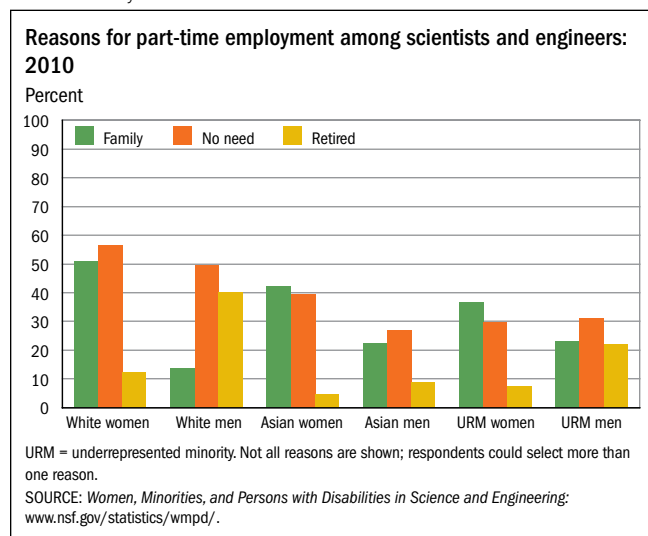


Rates of unemployment and part-time employment across racial/ethnic groups reflect variations in the age distributions of men and women in the science and engineering workforce, as well as differing family responsibilities.

**C** Across all racial/ethnic groups, female scientists and engineers who were not working were far more likely than men to cite family responsibilities and less likely than men to cite retirement as the reason for not working.



**D** Within each racial/ethnic group, female scientists and engineers who were employed part time cited family responsibilities more frequently than men, whereas men cited retirement more frequently than women. Whites were more likely than other racial/ethnic groups to indicate working part time because they did not need or want to work more hours.

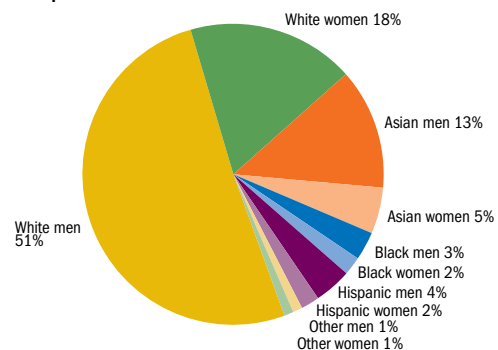


# Occupation

The science and engineering workforce is composed of people who earned degrees over roughly three decades. Because older cohorts of science and engineering workers are disproportionately white and male, women and minorities constitute a lower percentage of the overall science and engineering workforce than of science and engineering degree recipients who recently joined the workforce.

**A** The science and engineering workforce is largely white and male. Minority women comprise about 1 in 10 employed scientists and engineers.

**Scientists and engineers working in science and engineering occupations: 2010**

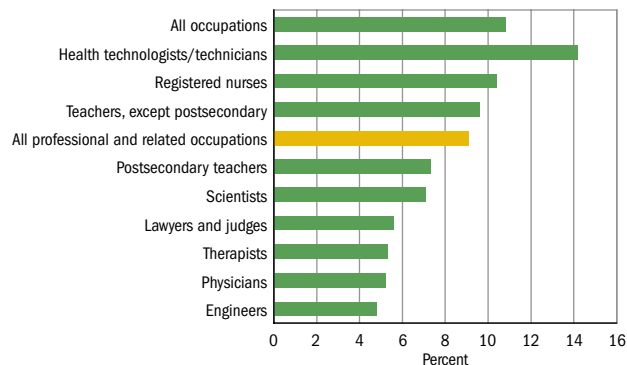


NOTE: Hispanic may be any race. Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple race.

SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**C** Blacks' participation in science and engineering occupations, as well as in all professional and related occupations, is also lower than it is in the U.S. workforce as a whole. Blacks are a smaller percentage of engineers than of scientists.

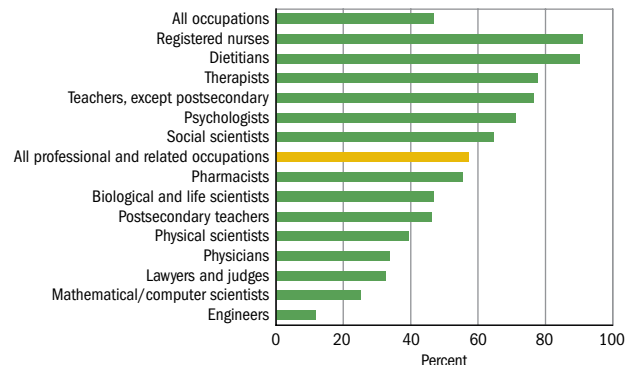
**Employed blacks 16 years and older as a percentage of selected occupations: 2011**



SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**B** Women's participation in science and engineering occupations is lower than it is in the U.S. workforce as a whole and varies greatly by occupation: it is higher among psychologists and lower among mathematical/computer scientists and engineers. Women continue to constitute the vast majority of those employed in traditionally female occupations, such as nurses.

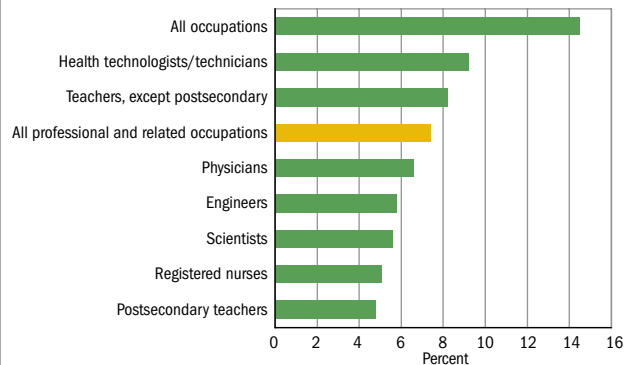
**Employed women 16 years and older as a percentage of selected occupations: 2011**



SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

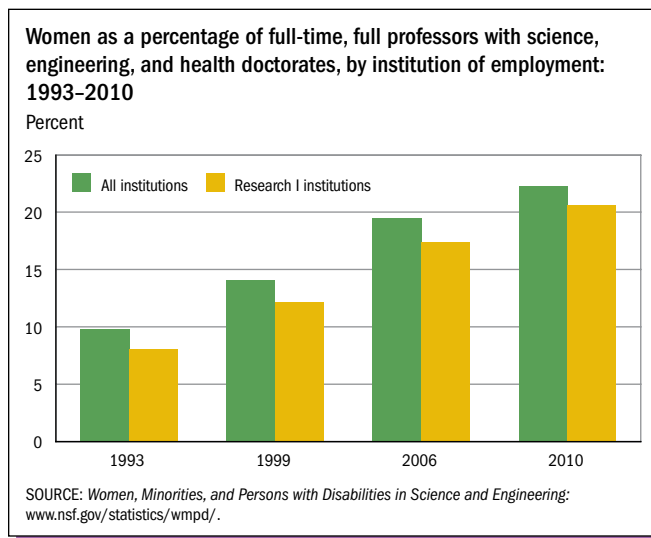
**D** The participation of Hispanics in science and engineering occupations and in professional and related occupations is low in comparison to the U.S. workforce; this is also true for blacks. Hispanics are a similar percentage of scientists as they are of engineers.

**Employed Hispanics 16 years and older as a percentage of selected occupations: 2011**

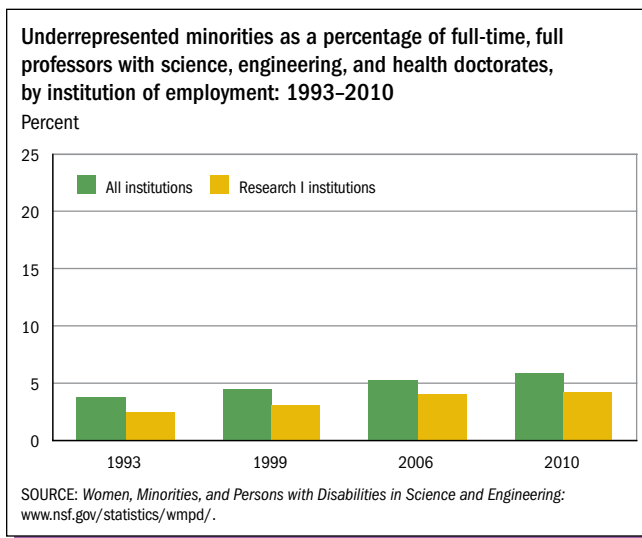


SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**A** The share of full-time, full professorships held by women has risen substantially over time. Despite the rise, women represent less than one-fourth of all full-time, full professors.

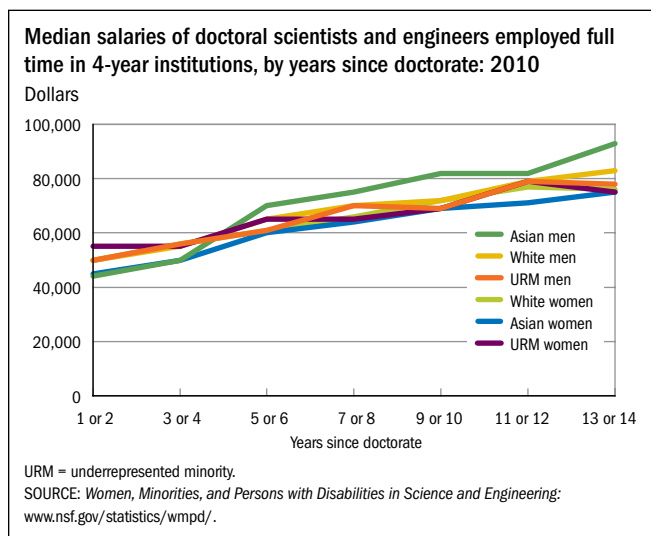


**B** The share of full-time, full professorships held by underrepresented minorities is lower and has risen more slowly than the share held by women.

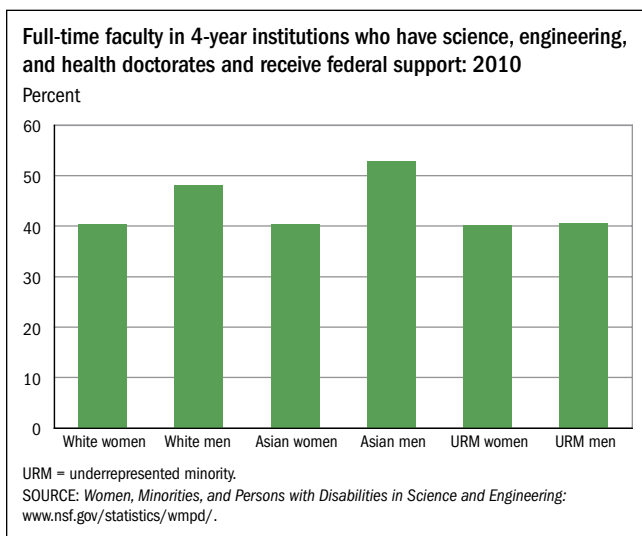


Women and underrepresented minorities in academic employment differ from their male and white counterparts in rank, tenure, and other characteristics.

**C** Among science and engineering doctorate holders with similar experience who are employed full time in 4-year colleges or universities, median salaries for men, women, and racial/ethnic groups are fairly similar.



**D** Among science and engineering doctorate holders employed full time as full, associate, or assistant professors in 4-year colleges or universities, Asian men are the most likely to have been supported by federal grants or contracts, followed by white men. Women and underrepresented minorities are less likely than both those groups to have received federal support.



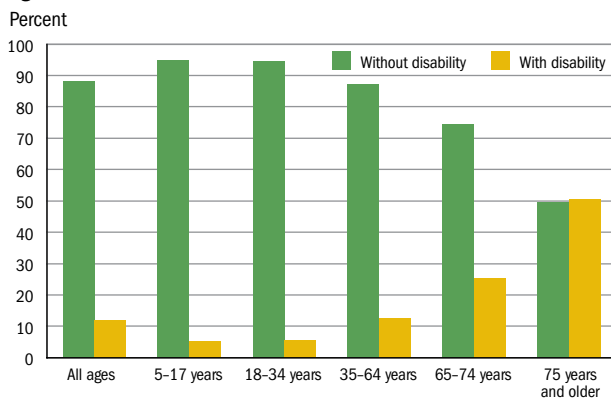
# Persons with Disabilities

Disability can occur throughout one's life. Disabilities acquired at birth or at an early age may influence decisions to pursue science and engineering studies; those acquired at later ages may influence opportunities to continue or seek employment.

Regardless of when disabilities were acquired, persons with disabilities are underrepresented in the science and engineering workforce compared to the population as a whole.

**A** People with disabilities make up a higher percentage of the older U.S. population than of younger age groups.

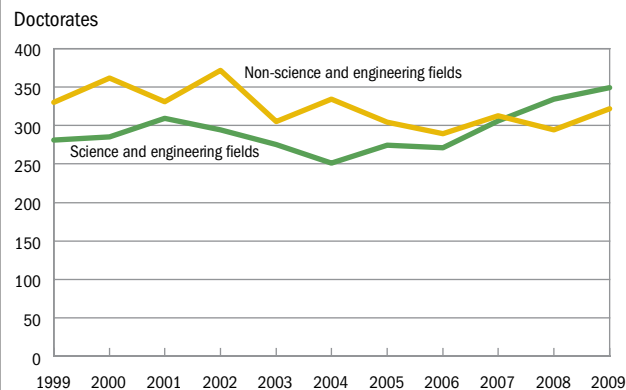
**U.S. civilian noninstitutionalized population, by disability status and age: 2010**



SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**B** U.S. citizens and permanent residents with disabilities earned higher numbers of science and engineering doctorates in 2009 than they did in 1999. Since 2008, they have earned more doctorates in S&E fields than in non-S&E fields.

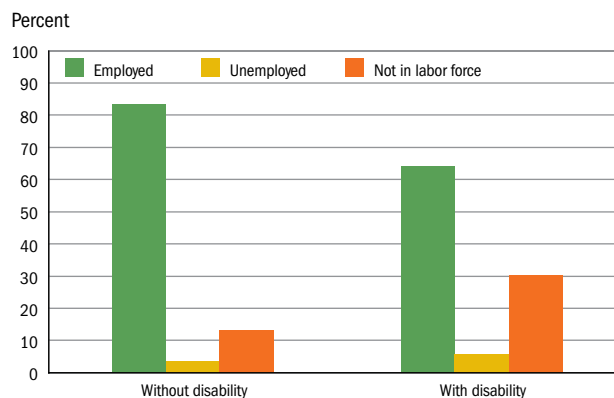
**Doctoral degrees awarded to U.S. citizens and permanent residents with disabilities: 1999-2009**



SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**C** Scientists and engineers with disabilities are more likely than those without disabilities to be unemployed or out of the labor force.

**Employment status of scientists and engineers, by disability status: 2010**

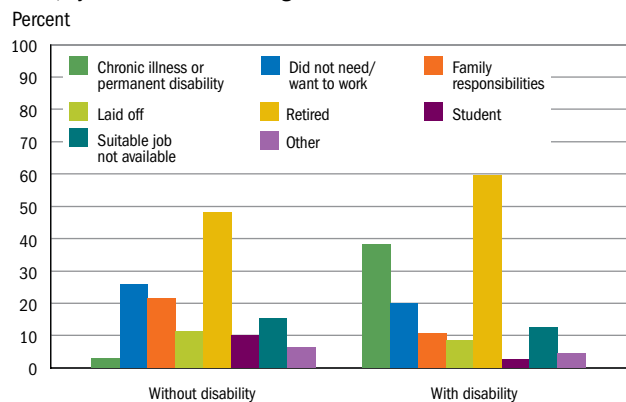


SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*; [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**D** Retirement was the primary reason for not working both for persons with and without disabilities. But for persons with disabilities, chronic illness or permanent disability was also a prevalent reason for not working.

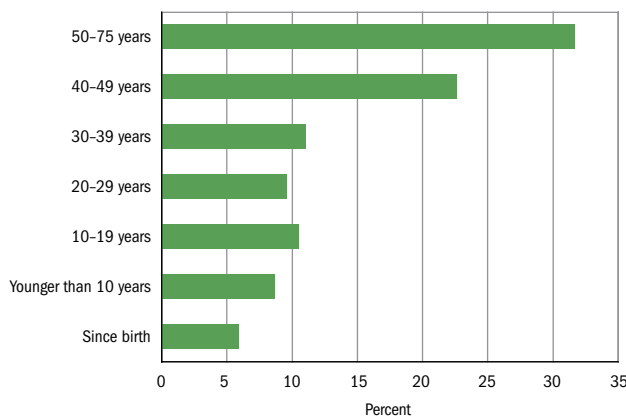
**E** More than one-half of scientists and engineers who report having disabilities say they became disabled at age 40 or older. Relatively few of those with disabilities had been disabled since birth.

**Scientists and engineers who are unemployed or out of the labor force, by reason for not working: 2010**



SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*: [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

**Age at onset of disability among scientists and engineers: 2010**



SOURCE: *Women, Minorities, and Persons with Disabilities in Science and Engineering*: [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/).

## Data Sources

The data in this digest come from surveys conducted by the National Science Foundation (National Center for Science and Engineering Statistics), the U.S. Department of Education (National Center for Education Statistics), the U.S. Department of Commerce (Census Bureau), and the U.S. Department of Labor (Bureau of Labor Statistics). The technical notes for this report, available online at [www.nsf.gov/statistics/wmpd/](http://www.nsf.gov/statistics/wmpd/), provide information on specific data sources, including the survey population, data collection procedures, and sampling errors.

The degree data in this report includes data on people with degrees in science and engineering, including the following fields: astronomy, chemistry, physics, atmospheric sciences, earth sciences, oceanography, mathematics and statistics, computer sciences, agricultural sciences, biological sciences, psychology, social sciences, and engineering. To present data in a condensed form for this digest, several fields were aggregated in figures and in text. The biological sciences field includes agricultural sciences, and the physical sciences field includes earth, atmospheric, and ocean sciences. Data on degrees include data on bachelor's, master's, and doctoral degrees and do not include data on professional degrees, such as the MD or JD.

Racial/ethnic categories reported are generally those mandated by the U.S. Office of Management and Budget (OMB) effective 1 January 2003. OMB specified the following categories of racial/ethnic groups: black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, white, Hispanic or Latino regardless of race, and more than one race reported. Previously, racial/ethnic groups were identified as white, black, Hispanic, Asian or Pacific Islander, and American Indian or Alaskan Native. In this report the racial/ethnic groups described for enrollment and degree data are designated by the old categories, because the National Center for Education Statistics collected this data under the previous standards through 2008 and gave schools the option of reporting race/ethnicity under either the old or new categories through the 2009–10 data collection cycle for enrollment data and through the 2010–11 data collection cycle for degree data. After these dates, it became mandatory to report under the new racial/ethnic categories (for more details, see the technical notes for this report). Thus, for degree data Asian includes Pacific Islander. For all data in this report, American Indian includes Alaska Native. Degree data by race/ethnicity refer to U.S. citizens and permanent residents only. Because of insufficient sample size in some surveys, not all groups are reported in all tables or figures.



## Glossary

**High-Hispanic-enrollment institution.** HHEs are academic institutions on the U.S. Department of Education's list of minority-serving institutions with high Hispanic enrollment in 2006. This list includes the institutions of higher education whose full-time equivalent enrollment of undergraduate students is at least 25% Hispanic. See <http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst-list-hisp-tab.html>.

**Historically black college or university.** HBCUs are academic institutions on a list maintained by the White House Initiative on Historically Black Colleges or Universities. The Higher Education Act of 1965, as amended, defines an HBCU as "...any historically black college or university that was established prior to 1964, whose principal mission was, and is, the education of black Americans, and that is accredited by a nationally recognized accrediting agency or association determined by the Secretary [of Education] to be a reliable authority as to the quality of training offered or is, according to such an agency or association, making reasonable progress toward accreditation." See <http://www2.ed.gov/about/inits/list/whhbcu/edlite-list.html>.

**Minority.** A minority is a racial/ethnic group that is a small percentage of the U.S. population. Blacks, Hispanics, American Indians or Alaska Natives, Native Hawaiians or Other Pacific Islanders, and Asians are minority groups.

**Scientists and engineers.** In this report, persons classified as scientists and engineers are residents of the United States with a baccalaureate degree or higher who were either educated as or are working as a scientist or engineer. A baccalaureate or higher degree is a bachelor's, master's, doctoral, or professional degree.

**Tribal college.** Tribal colleges are academic institutions that are members of the American Indian Higher Education Consortium and that are included as tribal colleges in the basic classification scheme of the 2005 Carnegie Classification of Institutions of Higher Education. See <http://www.aihec.org/colleges/TCUroster.cfm> and [http://classifications.carnegiefoundation.org/lookup\\_listings/standard.php](http://classifications.carnegiefoundation.org/lookup_listings/standard.php).

**Underrepresented minority.** This category comprises three racial/ethnic minority groups (blacks, Hispanics, and American Indians or Alaska Native) whose representation in science and engineering is smaller than their representation in the U.S. population.

### Key to Acronyms

**HBCU** = historically black college or university

**HHE** = high Hispanic enrollment

**S&E** = science and engineering

**URM** = underrepresented minority

## Online Resources

*Women, Minorities, and Persons with Disabilities in Science and Engineering* online is a dynamic information source with data updated as they become available. A rich set of resources that supplement this digest is available online at <http://www.nsf.gov/statistics/wmpd/>.

**Data tables.** Detailed data tables, organized by topic, allow the reader to explore the data in more depth. Data tables are available for download, either as Excel files or in portable document format (PDF).

**Figures.** Presentation graphics, in PowerPoint slide and image (JPEG) formats, accompanied by their supporting data in Excel format, are provided for each of the figures that illustrate the topics in this digest.

**Technical notes.** Technical notes provide information on reporting categories, sources of data, and sampling errors.

**Resource links.** Links are provided to additional sources of data on these topics from the National Science Foundation (NSF) and to related reports published by NSF, as well as to related reports and data from external sources, such as the National Center for Education Statistics and American Council on Education.

## Acknowledgments

This report was developed by the National Center for Science and Engineering Statistics (NCSES) at the National Science Foundation. It was guided by Rolf Lehming, John Gawalt, Stephen Cohen, and Robert Bell, assisted by staff in the Science and Engineering Indicators Program. Production of the printed volume was guided by Cheryl Roesel and produced by Tanya Gore and Christine Hamel, NCSES. Eileen Kessler and staff at OmniStudio Inc. designed the print layout. Development of the Web version was guided by Jeri Mulrow and produced by Robin Pentola and Rajinder Raut, all with NCSES, with technical assistance from staff of Penobscot Bay Media.

### SUGGESTED CITATION

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National Science Foundation, National Center for Science and Engineering Statistics. 2013. *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2013*. Special Report NSF 13-304. Arlington, VA. Available at <http://www.nsf.gov/statistics/wmpd/>.



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NSF 13-304

