Disparities in STEM Employment by Sex, Race, and Hispanic Origin

American Community Survey Reports

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Issued September 2013
ACS-24

INTRODUCTION

Industry, government, and academic leaders cite increasing the science, technology, engineering, and mathematics (STEM) workforce as a top concern. The National Academy of Sciences, National Academy of Engineering, and the Institute of Medicine describe STEM as "high-quality, knowledge-intensive jobs . . . that lead to discovery and new technology," improving the U.S. economy and standard of living.[1] In 2007, Congress passed the America COMPETES Act, reauthorized in 2010, to increase funding for STEM education and research.[2]

One focus area for increasing the STEM workforce has been to reduce disparities in STEM employment by sex, race, and Hispanic origin. Historically, women, Blacks, and Hispanics have been underrepresented in STEM employment.[3] Researchers find that women, Blacks, and Hispanics are less likely to be in a science or engineering major at the start of their college experience, and less likely to remain in these majors by its conclusion.[4] Because most STEM workers have a science or engineering college degree, underrepresentation among science and engineering majors could contribute to the underrepresentation of women, Blacks, and Hispanics in STEM employment.[5]

This report details the historical demographic composition of STEM occupations, followed by a detailed examination of current STEM employment by age and sex, presence of children in the household, and race and Hispanic origin based on the 2011 American Community Survey (ACS). The report concludes with an examination of the demographic characteristics of science and engineering graduates who are currently employed in a STEM occupation.

[1] Committee on Prospering in the Global Economy of the 21st Century: An Agenda for American Science and Technology, 2007, "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future," P.1, National Academy of Sciences, National Academy of Engineering, and Institute of Medicine of the National Academies, The National Academies Press, Washington, DC.

[2] America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act, Public Law No: 110-69, August 9, 2007, <www.gpo.gov/fdsys/pkg/PLAW-110publ69/pdf/PLAW-110publ69.pdf>.

[3] Federal surveys now give respondents the option of reporting more than one race. Therefore, two basic ways of defining a race group are possible. A group such as Asian may be defined as those who reported Asian and no other race (the race-alone or single-race concept) or as those who reported Asian regardless of whether they also reported another race (the race-alone-or-in-combination concept). The body of this report (text, figures, and tables) shows data using the first approach (race alone). Use of the single-race population does not imply that it is the preferred method of presenting or analyzing data. The Census Bureau uses a variety of approaches. This report will refer to the White-alone population as White, the Black-alone population as Black, the Asian-alone population as Asian, and the American Indian and Alaska Native-alone population as American Indian and Alaska Native. Because of a small number of sample observations, estimates for Native Hawaiian or Other Pacific Islander are combined with those who report Some Other Race. In the analyses presented here, the term "non-Hispanic White" refers to people who are not Hispanic and who reported White and no other race. The Census Bureau uses non-Hispanic Whites as the comparison group for other race groups and Hispanics. Because Hispanics may be any race, data in this report for Hispanics overlap with data for racial groups.

[4] Amanda L. Griffith, 2010, "Persistence of Women and Minorities in STEM Field Majors: Is It the School That Matters?" Economics of Education Review 29(6): 911–922.

[5] For more information on the educational background of STEM workers, see Liana Christin Landivar, 2013, "The Relationship Between Science and Engineering Education and Employment in STEM Occupations," ACS-23, U.S. Census Bureau, available at <www.census.gov/people/io/publications/reports.html>.

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HIGHLIGHTS

- Women's representation in STEM occupations has increased since the 1970s, but they remain significantly underrepresented in engineering and computer occupations, occupations that make up more than 80 percent of all STEM employment. Women's representation in computer occupations has declined since the 1990s.
- Among science and engineering graduates, men are employed in a STEM occupation at twice the rate of women: 31 percent compared with 15 percent. Nearly 1 in 5 female science and engineering graduates are out of the labor force, compared with less than 1 in 10 male science and engineering graduates.
- The most recent decades show less growth in STEM employment among younger women. Most of the growth in women's share of STEM employment among those under the age of 40 occurred between 1970 and 1990.
- About 41 percent of Asians with a science or engineering degree are currently employed in a STEM occupation, followed by individuals who self-identify as Two or More Races (24 percent) and non-Hispanic White (23 percent).[6]
- Blacks and Hispanics have been consistently underrepresented in STEM employment. In 2011, 11 percent of the workforce was Black, while 6 percent of STEM workers were Black (up from 2 percent in 1970). Although the Hispanic share of the workforce has increased significantly from 3 percent in 1970 to 15 percent in 2011, Hispanics were 7 percent of the STEM workforce in 2011.

CLASSIFICATION

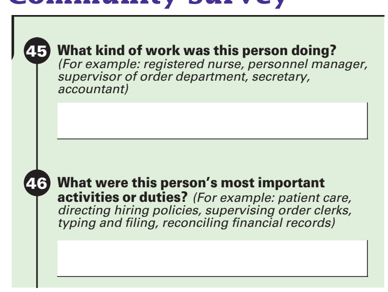
Occupational Classification

Occupation statistics are compiled from data that are coded based on the 2010 Standard Occupational Classification (SOC) manual.[7] All federal statistical agencies use the SOC to classify workers and jobs into occupational categories. The SOC was first published in 1980 with subsequent revisions in 2000 and 2010. The revision process is carried out by the Standard Occupational Classification Policy Committee (SOCPC), which included representatives of nine federal agencies for the 2010 revision. The SOC primarily classifies workers based on the type of work performed, rather than the education or training required.[8] Census Bureau occupation codes, based on the 2010 SOC, provide 539 specific occupational categories arranged into 23 major occupational groups.[9] ACS respondents were asked to write descriptions of the type of work and activities they do on the job (Figure 1). These responses are then coded into one of the 539 Census Bureau occupations.

WHAT IS STEM?

STEM workers are those employed in science, technology, engineering, and mathematics occupations. This includes computer and mathematical occupations, engineers, engineering technicians, life scientists, physical scientists, social scientists, and science technicians. STEM is subject-matter driven. As such, it includes managers, teachers, practitioners, researchers, and technicians. Although the majority of the STEM workforce has at least a bachelor's degree, the STEM workforce also includes those with associate's degrees and high school diplomas. The Census Bureau occupation code list contains 63 STEM occupations, accounting for 6 percent of the total civilian workforce aged 25 to 64.

Figure 1.
Reproduction of the Write-In Questions on Occupation From the 2011 American Community Survey


45 **What kind of work was this person doing?** *(For example: registered nurse, personnel manager, supervisor of order department, secretary, accountant)*

46 **What were this person's most important activities or duties?** *(For example: patient care, directing hiring policies, supervising order clerks, typing and filing, reconciling financial records)*

[6] The estimates for Two or More Races and non-Hispanic White are not statistically different.

[7] The SOC manual is available at <www.bls.gov/soc>.

[8] SOC Classification Principle 2 states, "Occupations are classified based on the work performed and, in some cases on the skills, education, and/or training needed to perform the work at a competent level."

[9] The Census Bureau has developed and maintained its own occupation code list since it started collecting data on occupation in 1850. The Census Bureau occupation code list has followed the structure of the Standard Occupational Classification since it was implemented in 1980, but aggregates smaller categories for confidentiality and statistical precision.

Table 1.

Classification of STEM, STEM-Related, and Non-STEM Occupations

High-level occupation aggregation	Occupation group	STEM occupation classification
Management, business, science, and arts	Management	Non-STEM (exc. computer and information systems managers, architectural and engineering managers, and natural science managers)
	Business and financial operations	Non-STEM
	Computer, math, engineering, and science	STEM (exc. architects; incl. sales engineers, computer and information systems managers, architectural and engineering managers, and natural science managers)
	Education, legal, community service, arts, and media	Non-STEM
	Healthcare practitioners and technicians	STEM-related (incl. architects)
Service	Healthcare support	Non-STEM
	Protective service	Non-STEM
	Food preparation and serving	Non-STEM
	Building and grounds cleaning	Non-STEM
	Personal care and service	Non-STEM
Sales and office	Sales and related	Non-STEM (exc. sales engineers)
	Office and administrative support	Non-STEM
Natural resources, construction, and maintenance	Farming, fishing, and forestry	Non-STEM
	Construction and extraction	Non-STEM
	Installation, maintenance, and repair	Non-STEM
Production, transportation, and material moving	Production	Non-STEM
	Transportation	Non-STEM
	Material moving	Non-STEM

Note: The full list of Census Bureau occupations used in this report and occupation-specific classification is available at <www.census.gov/people/io/methodology/>.

STEM Occupation Classification

There has been a lack of consensus on who qualifies as a STEM worker.[10] To enhance comparability across statistical agencies and organizations studying the STEM workforce, the SOCPC convened throughout 2011 at the request of the Office of Management and Budget (OMB) to create guidelines for the classification of STEM workers.[11] The SOCPC identified three occupational domains: (1) science, engineering, mathematics, and information technology occupations; (2) science- and engineering-related occupations; and (3) nonscience and engineering occupations. The final recommendations issued by the SOCPC were reviewed by outside agencies and approved by the OMB in April 2012.[12] This report follows the SOCPC recommendations. To apply the recommendations to Census Bureau occupations, some exceptions were necessary because of lack of detail to separate STEM and non-STEM workers (e.g., postsecondary teachers are not separated by subject matter). The final list of STEM occupations used in this report is available at <www.census.gov/people/io/methodology/>.

[10] David Langdon, George McKittrick, David Beede, Beethika Khan, and Mark Doms, 2011, "STEM: Good Jobs Now and for the Future," Economics and Statistics Administration, Issue Brief #03-11, <www.esa.doc.gov/sites/default/files/reports/documents/stemfinalyjuly14_1.pdf>.

[11] The SOCPC formed a STEM workgroup with representatives from Department of Labor, Bureau of Labor Statistics and Employment Training Administration; the Department of Commerce, Census Bureau; the Department of Defense, Defense Manpower Data Center; the Equal Employment Opportunity Commission; the Department of Health and Human Services, Health Resources and Services Administration; the Department of Education, National Center for Education Statistics; and the National Science Foundation, National Center for Science and Engineering Statistics.

[12] The final recommendations are available at <www.bls.gov/soc/#crosswalks>.

STEM occupations consist primarily of those employed in computer and mathematical occupations, engineers, life scientists, physical scientists, and social scientists. STEM-related occupations consist primarily of architects, healthcare practitioners, and healthcare technicians. Non-STEM occupations are all other occupations not classified in STEM or STEM-related occupations (Table 1). According to the Census Bureau occupation code list, there are 63 specific STEM occupations, 35 STEM-related occupations, and 437 non-STEM occupations (excluding military-specific occupations).

Field of Degree Classification

The ACS provided statistics on field of bachelor's degree for the first time in 2009. Respondents aged 25 and over who held a bachelor's degree were asked to write in the specific field(s) of any bachelor's degree earned (Figure 2). The Census Bureau coded these responses into 188 majors. These majors were then categorized into 5 broad fields and 15 detailed fields (Table 2). The broad set of fields includes: science and engineering; science- and engineering-related; business; education; and arts, humanities, and other. Data on field of degree are not available for vocational, graduate, or professional degrees.[13]

Figure 2.
Reproduction of the Write-In Question on Field of Degree From the 2011 American Community Survey

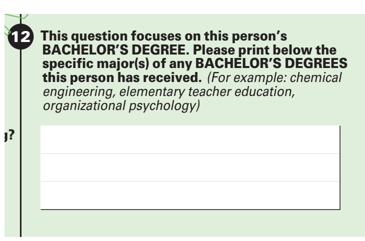
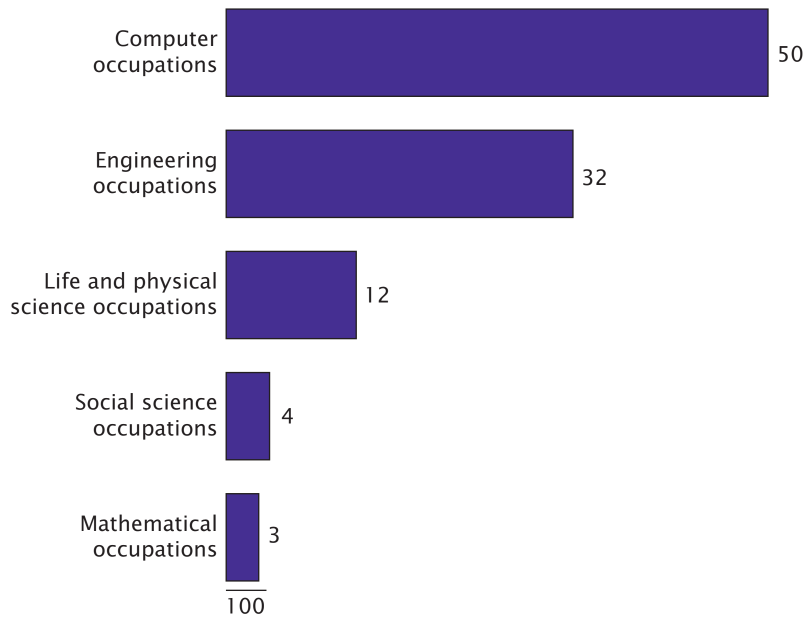

12 **This question focuses on this person's BACHELOR'S DEGREE. Please print below the specific major(s) of any BACHELOR'S DEGREES this person has received.** *(For example: chemical engineering, elementary teacher education, organizational psychology)*

Figure 3.
Occupational Distribution of STEM Workers
(In percent. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



Source: U.S. Census Bureau, 2011 American Community Survey.

EMPLOYMENT IN STEM OCCUPATIONS

In 2011, there were 7.2 million STEM workers aged 25 to 64, accounting for 6 percent of the workforce.[14] Half of STEM workers worked in computer occupations (Figure 3). Engineers and engineering technicians were 32 percent of the STEM workforce, followed by

[13] The field of degree classification presented in this report is consistent with the field of degree classification in American FactFinder tables. The National Science Foundation uses slightly different field of degree categories, consistent with the ACS Public Use Microdata Sample files at <www.census.gov/acs/www/data_documentation/pums_documentation/>.

[14] The estimates in this report are based on responses from a sample of the population. As with all surveys, estimates may vary from the actual values because of sampling variation or other factors. All comparisons made in this report have undergone statistical testing and are significant at the 90 percent confidence level unless otherwise noted.

Table 2.
Field of Bachelor's Degree Classification

Broad fields	Detailed fields
Science and engineering	Computers, mathematics, and statistics Biological, agricultural, and environmental sciences Physical and related science Psychology Social sciences Engineering Multidisciplinary studies
Science- and engineering-related	Science- and engineering-related (e.g., nursing, architecture, mathematics teacher education)
Business	Business (e.g., business management, accounting)
Education	Education (e.g., elementary education, general education)
Arts, humanities, and other	Literature and languages Liberal arts and history Visual and performing arts Communications Other (e.g., criminal justice, social work)

life and physical scientists (12 percent), social scientists (4 percent), and workers employed in mathematical occupations (3 percent).

Men and Women in STEM Occupations

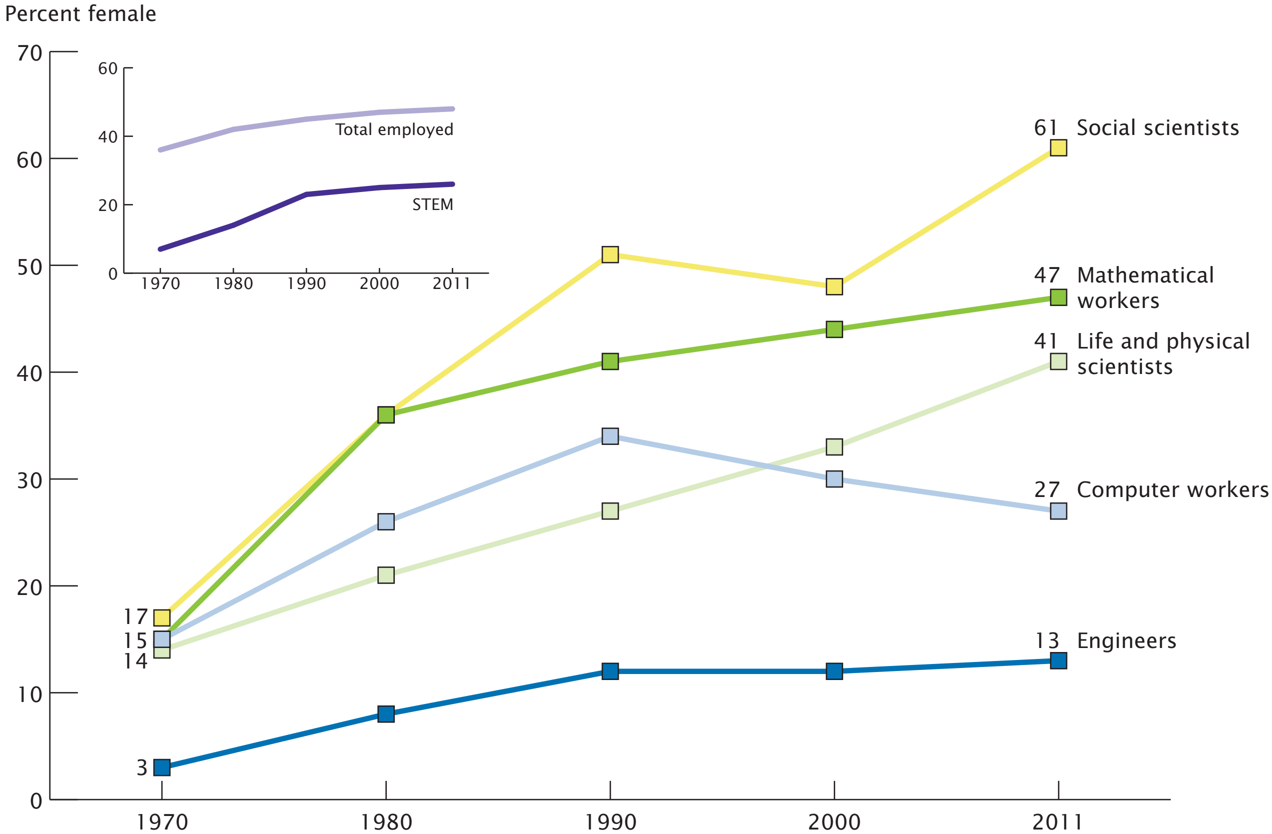
Although women make up nearly half of the working population, they remain underrepresented in STEM occupations. In 2011, 26 percent of STEM workers were women and 74 percent were men. There has been uneven growth in women's representation in STEM occupations since the 1970s. In 1970, women were 3 percent of engineers, 14 percent of life and physical scientists, 15 percent of mathematical and computer workers, and 17 percent of social scientists (Figure 4).[15]

By 2011, women's representation had grown in all STEM occupation groups. However, they remained significantly underrepresented in engineering and computer occupations, occupations that make up more than 80 percent of all STEM employment (Table 3). In fact, women's representation in computer occupations has declined since the 1990s. This mirrors the decline in women's share of bachelor's degrees in computer science awarded since the 1980s.[16] Women's underrepresentation in STEM is a result of their significant underrepresentation in engineering and computer occupations, rather than math and science occupations. While women's representation has continued to grow in math and science occupations since the 1970s, growth has tapered off in engineering since 1990. In 2011, women were 13 percent of engineers, 27 percent of computer professionals, 41 percent of life and physical scientists, 47 percent of mathematical workers, and 61 percent of social scientists.

[15] Estimates for 1970, 1980, 1990, and 2000 in this report were obtained using internal Census Bureau files. Estimates may differ from those published previously because of specific age restrictions (25 to 64) used in this report.

[16] National Science Foundation, Division of Science Resources Statistics, 2011, "Women, Minorities, and Persons with Disabilities in Science and Engineering: 2011," Special Report NSF 11-309, Arlington, VA.

Figure 4.
Women's Employment in STEM Occupations: 1970 to 2011
(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



Sources: U.S. Census Bureau, 1970, 1980, 1990, and 2000 decennial censuses and 2011 American Community Survey.

Table 3 provides estimates of STEM employment by detailed STEM occupational categories. Among the occupations with the largest representation of women is psychologist (70 percent are women), while mechanical engineers have among the lowest female representation (6 percent are women).[17]

Figure 5 shows that women's employment in STEM is below average in most STEM occupations. If women were equally represented in STEM occupations, their share would approximate 48 percent, which is the share of the workforce that is female. Women's employment shares do vary significantly by detailed occupation, but their share of employment is lowest in engineering occupations.

[17] The estimate for psychologists is not statistically different from the estimates for sociologists and survey researchers.

Table 3.
Employment in STEM Occupations: 2011
(Civilian employed aged 25 to 64)

Occupations	Number	MOE[1]	Percent of STEM work-force	MOE[1]	Percent female	MOE[1]	Percent White alone, not Hispanic or Latino	MOE[1]	Percent Asian alone	MOE[1]	Percent Black or African Ameri-can alone	MOE[1]	Percent Hispanic	MOE[1]
Total employed	**116,445,308**	**106,429**	**X**	**X**	**47.5**	**0.1**	**66.9**	**0.1**	**5.5**	**0.1**	**10.8**	**0.1**	**14.9**	**0.1**
Total STEM occupations	**7,227,620**	**48,618**	**100.0**	**X**	**25.8**	**0.3**	**70.8**	**0.3**	**14.5**	**0.2**	**6.4**	**0.2**	**6.5**	**0.2**
Computer occupations	**3,614,046**	**33,846**	**50.0**	**0.3**	**26.6**	**0.4**	**67.9**	**0.4**	**16.8**	**0.4**	**7.3**	**0.3**	**6.0**	**0.2**
Computer and information systems managers	504,161	13,167	7.0	0.2	29.5	1.0	74.6	1.2	11.6	0.7	6.1	0.8	5.6	0.6
Computer and information research scientists	14,981	1,747	0.2	0.1	24.9	5.1	77.6	5.3	14.0	4.5	2.4	1.6	4.1	2.4
Computer systems analysts	431,894	12,361	6.0	0.2	35.3	1.2	66.2	1.3	16.8	1.2	9.0	0.9	5.7	0.6
Information security analysts	47,196	3,987	0.7	0.1	22.9	3.0	70.9	3.7	7.6	2.0	11.5	2.7	7.5	2.4
Computer programmers	415,229	9,773	5.7	0.1	23.0	1.0	71.0	1.2	17.0	1.0	4.7	0.6	5.3	0.6
Software developers	851,921	16,796	11.8	0.2	22.1	0.8	59.1	1.0	30.1	1.0	5.1	0.5	3.9	0.4
Web developers	149,739	7,382	2.1	0.1	37.0	2.6	75.1	2.3	12.0	1.7	4.4	1.0	6.1	1.2
Computer support specialists	463,148	12,148	6.4	0.2	28.9	1.0	70.0	1.4	8.1	0.7	11.6	0.9	8.6	0.8
Database administrators	97,415	5,637	1.3	0.1	40.1	2.4	67.1	2.7	16.5	2.1	7.6	1.3	6.4	1.3
Network and computer systems administrators	220,363	8,475	3.0	0.1	19.9	1.6	73.5	1.7	9.4	1.2	7.9	1.0	7.8	1.1
Computer network architects	91,677	6,922	1.3	0.1	11.4	2.5	71.0	3.2	13.1	1.8	7.2	1.4	6.9	2.1
Computer occupations, all other	326,322	10,125	4.5	0.1	24.1	1.4	66.9	1.7	12.1	1.1	10.6	1.1	7.9	1.1
Mathematical occupations	**202,667**	**7,916**	**2.8**	**0.1**	**47.0**	**2.1**	**70.3**	**1.6**	**12.0**	**1.4**	**9.3**	**1.2**	**6.1**	**1.0**
Actuaries	22,069	2,387	0.3	0.1	36.2	5.3	79.1	4.2	14.9	3.3	2.4	1.5	2.7	2.4
Mathematicians	2,450	955	0.0	0.1	23.3	14.3	64.2	18.4	19.8	16.8	16.0	14.9	0.0	6.1
Operations research analysts	133,100	6,571	1.8	0.1	48.1	2.5	71.4	2.2	8.7	1.4	10.8	1.4	6.9	1.2
Statisticians	42,358	3,920	0.6	0.1	50.2	4.8	62.5	4.0	19.9	3.7	8.2	3.3	6.2	2.2
Miscellaneous mathematical science occupations	2,690	868	0.0	0.1	51.8	14.0	70.2	15.8	19.6	14.4	0.0	5.6	2.9	2.9
Engineering occupations	**2,305,215**	**26,370**	**31.9**	**0.3**	**13.2**	**0.4**	**75.2**	**0.6**	**11.3**	**0.3**	**4.9**	**0.3**	**7.1**	**0.4**
Architectural and engineering managers	130,207	5,603	1.8	0.1	10.2	1.3	82.4	1.9	8.4	1.3	2.2	0.7	5.3	1.2
Surveyors, cartographers, and photogrammetrists	35,190	3,191	0.5	0.1	19.9	3.4	90.0	2.9	2.3	1.0	2.9	1.8	3.7	2.0
Aerospace engineers	124,902	5,649	1.7	0.1	11.3	1.5	77.8	1.9	10.1	1.3	3.2	1.0	6.8	1.4
Agricultural engineers	2,389	891	0.0	0.1	8.1	9.1	87.9	10.8	0.0	6.3	3.0	5.1	8.4	9.4
Biomedical engineers	13,383	1,851	0.2	0.1	15.7	5.6	74.2	5.1	15.8	4.3	3.9	3.1	3.5	2.4
Chemical engineers	47,214	3,203	0.7	0.1	12.6	2.9	77.2	4.1	9.8	2.7	4.5	1.8	7.4	2.7
Civil engineers	262,066	9,443	3.6	0.1	13.1	1.3	75.6	1.6	11.6	1.2	3.8	0.7	7.2	1.0
Computer hardware engineers	58,517	4,846	0.8	0.1	17.0	3.3	63.6	3.9	23.1	3.5	5.8	2.1	6.5	1.9
Electrical and electronics engineers	203,538	8,039	2.8	0.1	8.8	1.1	67.8	2.0	19.2	1.4	5.6	1.2	6.4	1.1
Environmental engineers	24,163	2,364	0.3	0.1	20.2	4.0	76.3	3.7	10.2	2.9	9.7	3.0	3.3	1.8
Industrial engineers, including health and safety	156,517	6,969	2.2	0.1	18.4	1.9	76.8	2.1	9.8	1.2	4.4	1.0	8.1	1.6
Marine engineers and naval architects	10,005	1,318	0.1	0.1	9.3	5.4	81.3	7.6	12.8	6.8	5.0	3.7	1.5	1.5
Materials engineers	29,445	2,525	0.4	0.1	11.6	3.1	78.1	4.5	12.6	3.7	3.7	1.8	4.0	1.7
Mechanical engineers	189,241	6,772	2.6	0.1	6.3	0.8	79.3	1.5	9.5	1.2	4.6	1.0	5.4	1.0
Mining and geological engineers	7,889	1,240	0.1	0.1	6.7	3.2	84.9	6.7	4.5	4.3	1.1	2.0	7.5	4.1

See notes at end of table.

Table 3.
Employment in STEM Occupations: 2011—Con.
(Civilian employed aged 25 to 64)

Occupations	Number	MOE[1]	Percent of STEM work-force	MOE[1]	Percent female	MOE[1]	Percent White alone, not Hispanic or Latino	MOE[1]	Percent Asian alone	MOE[1]	Percent Black or African Ameri-can alone	MOE[1]	Percent Hispanic	MOE[1]
Engineering occupations—Con.														
Nuclear engineers	5,681	1,461	0.1	0.1	11.5	8.2	90.3	6.5	4.7	3.1	0.0	2.7	5.0	5.5
Petroleum engineers	23,522	3,059	0.3	0.1	13.5	4.7	73.0	6.0	7.5	3.3	9.9	4.4	8.8	3.9
Engineers, all other	396,704	11,787	5.5	0.2	12.8	0.8	72.7	1.3	16.1	1.1	4.0	0.7	5.3	0.7
Drafters	146,622	6,217	2.0	0.1	17.5	1.8	76.5	2.3	6.0	1.0	4.5	1.2	11.7	2.0
Engineering technicians	352,707	8,425	4.9	0.1	17.4	0.9	72.0	1.5	7.9	0.8	8.3	0.9	9.8	1.1
Surveying and mapping technicians	56,169	4,257	0.8	0.1	7.8	1.6	82.6	2.6	1.7	0.8	4.0	1.4	8.8	2.2
Sales engineers	29,144	3,003	0.4	0.1	8.6	2.3	85.1	3.6	6.1	1.8	1.2	1.0	6.9	3.0
Life and physical science occupations	**848,514**	**16,315**	**11.7**	**0.2**	**40.9**	**0.9**	**68.6**	**0.9**	**16.9**	**0.7**	**5.9**	**0.5**	**6.4**	**0.5**
Natural sciences managers	22,536	1,991	0.3	0.1	44.1	4.8	77.8	4.6	9.3	3.0	4.8	2.8	6.8	2.6
Agricultural and food scientists	25,509	2,184	0.4	0.1	23.2	3.6	85.4	3.8	6.4	2.1	2.6	2.6	3.5	1.4
Biological scientists	72,804	4,924	1.0	0.1	46.9	2.6	75.1	2.9	14.3	2.4	4.4	2.0	3.9	1.1
Conservation scientists and foresters	23,764	2,382	0.3	0.1	20.3	3.4	88.6	3.4	0.5	0.6	3.1	1.9	4.2	1.8
Medical and life scientists	122,748	6,204	1.7	0.1	52.9	2.1	55.4	2.3	31.9	2.1	5.1	1.3	5.3	1.0
Astronomers and physicists	11,331	1,760	0.2	0.1	19.7	6.0	71.3	7.1	15.8	5.8	2.4	2.6	6.4	5.2
Agricultural and food science technicians	26,166	2,931	0.4	0.1	41.5	5.4	69.9	4.8	5.9	2.7	7.6	2.8	14.8	3.9
Biological technicians	19,054	2,553	0.3	0.1	40.7	5.5	55.8	5.9	19.1	4.6	7.5	3.3	14.8	5.4
Chemical technicians	61,175	3,889	0.8	0.1	33.6	3.3	70.0	3.9	4.9	1.6	14.5	3.6	8.5	2.1
Geological and petroleum technicians	14,888	2,324	0.2	0.1	30.4	7.1	75.6	5.4	4.3	2.7	8.1	3.6	10.1	4.3
Nuclear technicians	3,229	868	0.0	0.1	28.7	11.9	91.7	5.4	0.0	4.7	8.3	5.4	0.0	4.7
Atmospheric and space scientists	8,407	1,405	0.1	0.1	16.6	6.5	82.9	6.9	4.4	3.3	2.7	3.0	8.7	4.6
Chemists and materials scientists	76,339	4,632	1.1	0.1	39.6	2.7	66.2	3.4	19.9	2.3	6.8	1.8	6.2	2.0
Environmental scientists and geoscientists	66,502	4,444	0.9	0.1	30.4	3.2	86.0	2.2	5.0	1.6	2.7	1.1	3.9	1.2
Physical scientists, all other	180,332	6,788	2.5	0.1	40.9	1.5	63.8	1.9	26.5	1.8	3.5	0.8	4.5	0.8
Miscellaneous life, physical, and social science technicians	113,730	5,271	1.6	0.1	48.3	2.7	65.9	2.3	11.6	1.3	9.5	1.7	10.3	1.9
Social science occupations	**257,178**	**7,674**	**3.6**	**0.1**	**61.2**	**1.5**	**79.3**	**1.6**	**4.5**	**0.7**	**6.5**	**1.1**	**7.8**	**0.9**
Economists	24,460	2,564	0.3	0.1	32.7	4.6	65.5	5.2	12.7	3.0	8.1	4.0	11.5	3.8
Survey researchers	1,602	628	0.0	0.1	58.0	19.4	84.5	14.6	6.2	10.2	4.0	6.8	5.3	8.3
Psychologists	164,516	6,551	2.3	0.1	70.3	1.7	82.9	2.0	2.7	0.8	6.0	1.4	6.9	1.0
Sociologists	3,196	969	0.0	0.1	61.0	13.5	67.9	18.6	2.6	4.3	5.4	8.3	22.3	15.3
Urban and regional planners	18,442	2,210	0.3	0.1	41.6	4.8	74.0	5.5	7.7	3.0	9.2	3.5	8.8	4.3
Miscellaneous social scientists and related workers	41,600	3,266	0.6	0.1	52.6	3.5	77.8	3.6	5.6	2.1	6.5	2.3	6.2	2.0
Social science research assistants	3,362	1,062	0.0	0.1	38.7	14.1	64.8	13.5	6.1	7.9	3.8	3.2	24.0	12.7

X Not applicable.

[1] Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimates, the less reliable the estimate. When added to and subtracted from the estimate, the margin of error forms the 90 percent confidence interval.

Note: Estimates for the American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races populations are not shown because of a small number of sample observations.

Source: U.S. Census Bureau, 2011 American Community Survey. For more information, see <www.acs.census.gov/acs>.

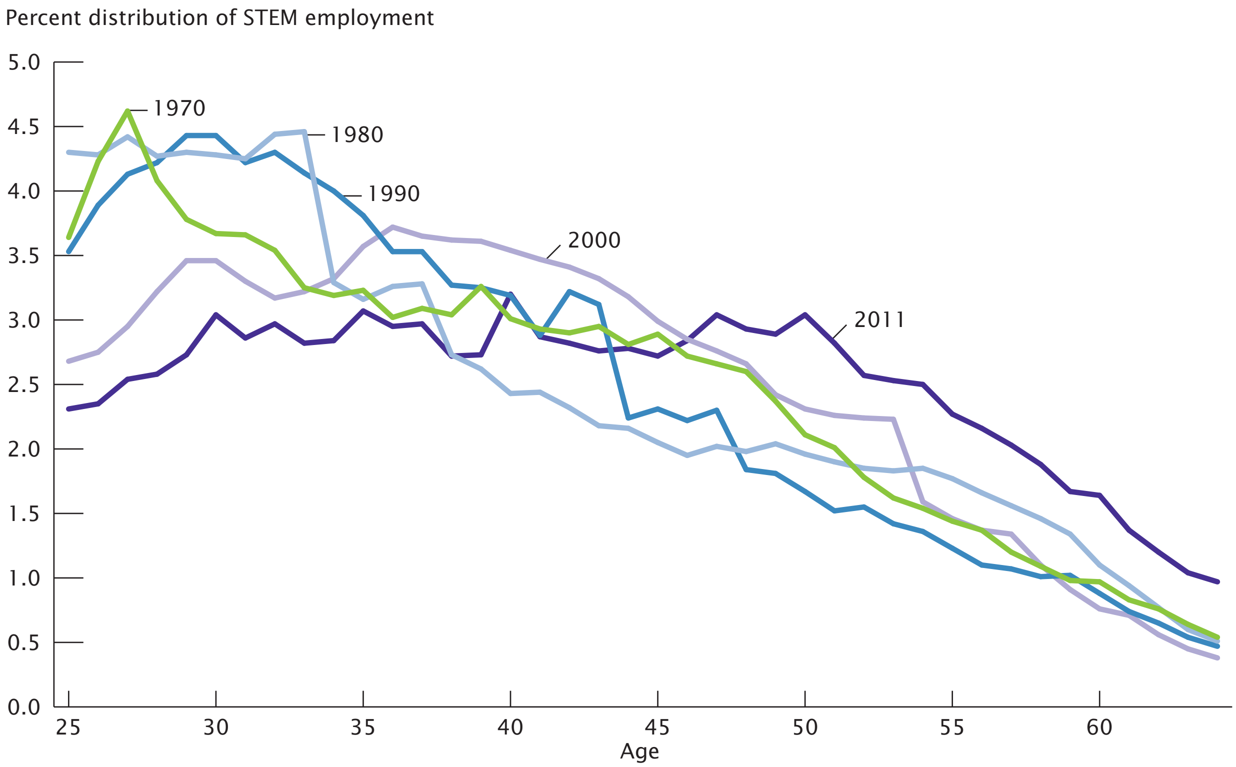
Figure 5.

Women's Employment by Detailed STEM Occupations

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)

Source: U.S. Census Bureau, 2011 American Community Survey.

Figure 6.
Age Distribution of STEM Workers: 1970 to 2011
(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



Sources: U.S. Census Bureau, 1970, 1980, 1990, and 2000 decennial censuses and 2011 American Community Survey.

STEM Employment by Age and Sex

STEM workers are more likely to be in core working-age groups (aged 25 to 54) than non-STEM workers. Because most STEM workers have a bachelor's degree or higher level of education, few STEM workers are younger than 25.[18] However, STEM workers have a slightly younger age profile than non-STEM workers. Workers between the ages of 35 and 44 make up the largest share of the STEM workforce, while workers between the ages of 45 and 54 make up the largest share of non-STEM employment (Table 4). Figure 6 shows that the STEM workforce is becoming older and more age-diverse, compared with 1970 to 1990, when a larger share of STEM workers were in their twenties and thirties.[19]

The aging of the STEM workforce may have a disproportionate impact on women's share of the STEM workforce. Some research indicates that younger women today are more likely to pursue training in a STEM field, and this may contribute to their larger share of employment in STEM compared

[18] For more information about STEM workers under the age of 25, see "Selected Characteristics by Employment in STEM Occupations: 2011" at <www.census.gov/people/io/publications/reports.html>.

[19] The aging of the STEM workforce is similar to the aging of the total workforce.

Table 4.
Selected Characteristics by Employment in STEM Occupations: 2011
(Civilian employed aged 25 to 64)

Characteristics	Total				STEM occupations				STEM-related occupations				Non-STEM occupations			
	Number	MOE[1]	Per-cent	MOE[1]	Number	MOE[1]	Per-cent	MOE[1]	Number	MOE[1]	Per-cent	MOE[1]	Number	MOE[1]	Per-cent	MOE[1]
Total	**116,445,308**	**106,429**	**100.0**	**X**	**7,227,620**	**48,618**	**100.0**	**X**	**7,829,769**	**49,792**	**100.0**	**X**	**101,387,919**	**104,828**	**100.0**	**X**
Sex																
Male	61,162,449	66,968	52.5	0.1	5,363,422	40,866	74.2	0.3	2,036,665	25,112	26.0	0.3	53,762,362	74,742	53.0	0.1
Female	55,282,859	73,264	47.5	0.1	1,864,198	21,887	25.8	0.3	5,793,104	40,817	74.0	0.3	47,625,557	79,979	47.0	0.1
Age																
25 to 34 years	30,158,891	52,737	25.9	0.1	1,953,956	26,903	27.0	0.3	1,976,807	26,509	25.2	0.3	26,228,128	56,076	25.9	0.1
35 to 44 years	30,744,454	51,258	26.4	0.1	2,086,259	27,879	28.9	0.3	2,105,841	26,294	26.9	0.3	26,552,354	47,754	26.2	0.1
45 to 54 years	32,998,018	56,946	28.3	0.1	2,015,184	22,689	27.9	0.3	2,163,221	25,869	27.6	0.3	28,819,613	53,566	28.4	0.1
55 to 64 years	22,543,945	45,677	19.4	0.1	1,172,221	16,081	16.2	0.2	1,583,900	18,372	20.2	0.2	19,787,824	49,053	19.5	0.1
Male:																
25 to 34 years	16,004,873	35,867	26.2	0.1	1,435,260	22,647	26.8	0.3	475,169	12,222	23.3	0.5	14,094,444	43,478	26.2	0.1
35 to 44 years	16,432,230	36,062	26.9	0.1	1,562,400	23,881	29.1	0.4	564,217	14,021	27.7	0.6	14,305,613	39,018	26.6	0.1
45 to 54 years	17,134,230	39,021	28.0	0.1	1,486,545	19,946	27.7	0.3	542,754	12,307	26.6	0.5	15,104,931	40,771	28.1	0.1
55 to 64 years	11,591,116	32,494	19.0	0.1	879,217	12,705	16.4	0.2	454,525	9,898	22.3	0.4	10,257,374	35,609	19.1	0.1
Female:																
25 to 34 years	14,154,018	38,780	25.6	0.1	518,696	11,429	27.8	0.5	1,501,638	21,994	25.9	0.3	12,133,684	41,782	25.5	0.1
35 to 44 years	14,312,224	36,535	25.9	0.1	523,859	11,974	28.1	0.6	1,541,624	22,411	26.6	0.3	12,246,741	35,872	25.7	0.1
45 to 54 years	15,863,788	39,719	28.7	0.1	528,639	11,496	28.4	0.5	1,620,467	20,997	28.0	0.3	13,714,682	40,880	28.8	0.1
55 to 64 years	10,952,829	34,102	19.8	0.1	293,004	8,930	15.7	0.4	1,129,375	15,835	19.5	0.3	9,530,450	36,586	20.0	0.1
Own Children Under 18																
In family with own children under 18 years	45,855,783	112,765	39.5	0.1	2,986,479	27,335	41.3	0.3	3,336,585	31,052	42.6	0.3	39,532,719	103,589	39.1	0.1
Under 6 years only	9,471,459	76,011	8.2	0.1	796,053	15,334	11.0	0.2	766,158	14,738	9.8	0.2	7,909,248	65,821	7.8	0.1
6 to 17 years only	27,282,894	90,065	23.5	0.1	1,642,629	20,403	22.7	0.3	1,951,277	22,617	24.9	0.2	23,688,988	82,303	23.4	0.1
Under 6 years and 6 to 17	9,101,430	59,594	7.8	0.1	547,797	13,052	7.6	0.2	619,150	14,264	7.9	0.2	7,934,483	56,114	7.8	0.1
No own children present	70,332,664	115,892	60.5	0.1	4,236,837	37,731	58.7	0.3	4,489,252	35,403	57.4	0.3	61,606,575	121,269	60.9	0.1
Male:																
In family with own children under 18 years	24,226,161	76,831	39.7	0.1	2,285,458	23,916	42.6	0.3	874,761	16,681	43.0	0.5	21,065,942	77,136	39.3	0.1
Under 6 years only	5,368,653	48,293	8.8	0.1	609,945	13,955	11.4	0.2	223,334	7,404	11.0	0.4	4,535,374	44,908	8.5	0.1
6 to 17 years only	13,686,817	51,472	22.4	0.1	1,242,783	17,787	23.2	0.3	477,412	12,328	23.5	0.5	11,966,622	49,663	22.3	0.1
Under 6 years and 6 to 17	5,170,691	40,060	8.5	0.1	432,730	10,472	8.1	0.2	174,015	7,994	8.6	0.4	4,563,946	37,467	8.5	0.1
No own children present	36,770,383	72,984	60.3	0.1	3,075,277	31,830	57.4	0.3	1,160,427	15,561	57.0	0.5	32,534,679	74,975	60.7	0.1

See notes at end of table.

Table 4.
Selected Characteristics by Employment in STEM Occupations: 2011—Con.
(Civilian employed aged 25 to 64)

Characteristics	Total				STEM occupations				STEM-related occupations				Non-STEM occupations			
	Number	MOE[1]	Percent	MOE[1]	Number	MOE[1]	Percent	MOE[1]	Number	MOE[1]	Percent	MOE[1]	Number	MOE[1]	Percent	MOE[1]
Own Children Under 18—Con.																
Female:																
In family with own children under 18 years	21,629,622	63,889	39.2	0.1	701,021	12,370	37.6	0.5	2,461,824	22,534	42.5	0.3	18,466,777	59,647	38.8	0.1
Under 6 years only	4,102,806	36,065	7.4	0.1	186,108	6,157	10.0	0.3	542,824	11,868	9.4	0.2	3,373,874	31,523	7.1	0.1
6 to 17 years only	13,596,077	53,182	24.6	0.1	399,846	8,946	21.5	0.4	1,473,865	16,523	25.5	0.3	11,722,366	50,026	24.7	0.1
Under 6 years and 6 to 17	3,930,739	32,039	7.1	0.1	115,067	5,927	6.2	0.3	445,135	10,639	7.7	0.2	3,370,537	31,954	7.1	0.1
No own children present	33,562,281	75,494	60.8	0.1	1,161,560	17,489	62.4	0.5	3,328,825	31,069	57.5	0.3	29,071,896	79,202	61.2	0.1
Birth in the last 12 months[2]																
Birth in the last 12 months	1,725,937	23,197	4.5	0.1	67,008	3,952	4.9	0.3	233,410	7,829	5.8	0.2	1,425,519	21,229	4.4	0.1
No birth in the last 12 months	36,404,505	65,733	95.5	0.1	1,308,234	16,820	95.1	0.3	3,777,589	33,599	94.2	0.2	31,318,682	71,656	95.6	0.1
Race and Hispanic Origin																
White alone	89,234,795	99,427	76.6	0.1	5,454,782	44,902	75.5	0.3	6,076,676	47,336	77.6	0.3	77,703,337	103,196	76.6	0.1
White alone, not Hispanic or Latino	77,920,908	77,264	66.9	0.1	5,113,563	39,790	70.8	0.3	5,689,948	44,881	72.7	0.3	67,117,397	82,615	66.2	0.1
Black or African American alone	12,628,937	46,389	10.8	0.1	461,949	13,485	6.4	0.2	792,668	16,810	10.1	0.2	11,374,320	46,677	11.2	0.1
Asian alone	6,404,993	30,110	5.5	0.1	1,047,444	16,159	14.5	0.2	678,210	15,331	8.7	0.2	4,679,339	35,007	4.6	0.1
American Indian and Alaska Native alone	749,596	17,904	0.6	0.1	26,077	2,929	0.4	0.1	33,708	2,770	0.4	0.1	689,811	17,339	0.7	0.1
Some Other Race and Native Hawaiian or Other Pacific Islander alone[3]	5,367,087	48,589	4.6	0.1	103,078	5,431	1.4	0.1	122,703	6,789	1.6	0.1	5,141,306	48,363	5.1	0.1
Two or More Races	2,059,900	36,088	1.8	0.1	134,290	6,699	1.9	0.1	125,804	6,944	1.6	0.1	1,799,806	32,368	1.8	0.1
Hispanic or Latino (of any race)	17,368,595	46,082	14.9	0.1	467,520	16,056	6.5	0.2	531,509	15,477	6.8	0.2	16,369,566	49,709	16.1	0.1

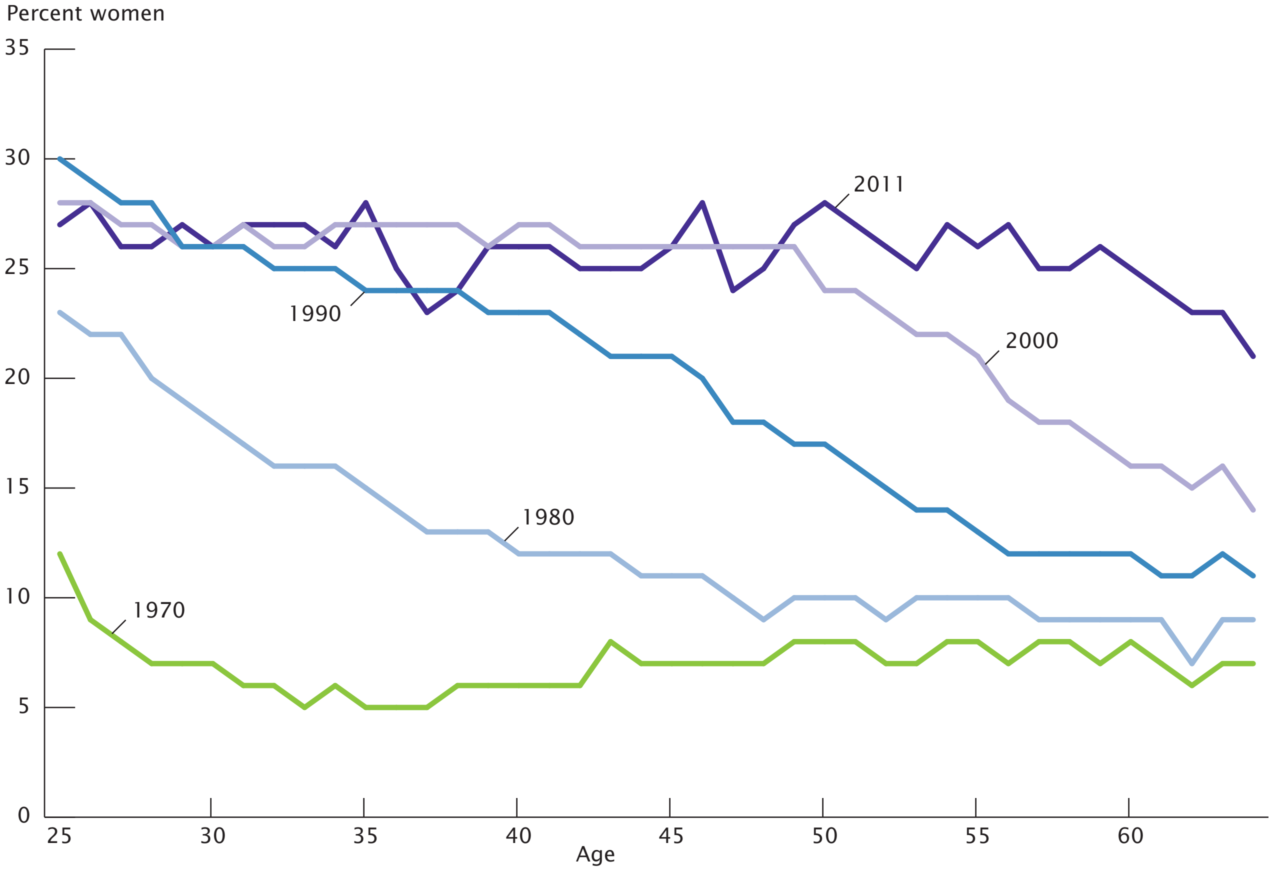
X Not applicable.
[1] Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimates, the less reliable the estimate. When added to and subtracted from the estimate, the margin of error forms the 90 percent confidence interval.
[2] Applies to women between the ages of 25 and 50.
[3] Native Hawaiian and Other Pacific Islander alone was combined with Some Other Race because of a small number of sample observations.
Source: U.S. Census Bureau, 2011 American Community Survey. For more information, see <www.acs.census.gov/acs>.

with older women.[20] This perspective would be consistent with a cohort effect, where we would expect higher shares of female employment in STEM in the future, as young women who are in STEM occupations age and retain STEM employment. On the other hand, these estimates could be consistent with an age effect. That is, when women are young, they are more likely to be employed in STEM, but as they age, they move out of STEM employment.

In the 1970s, women's share of STEM occupations was 12 percent when they were 25 years old, sharply declined when women were in their late-twenties, and remained relatively low until retirement (Figure 7).[21] In 2011, women had higher shares of STEM employment than in the 1970s, starting out at 27 percent at the age of 25, and relative to earlier decades, showed more stability in STEM employment during peak employment ages and into retirement.[22] However, while women's share of STEM employment is up since 1970, the most recent decades show much less

[20] Economics and Statistics Administration, 2012, "STEM Across the "Gen(d)erations," Economic Briefing, <www.esa.doc.gov/blog/2012/04/24/>.
[21] Compared to women's share of total employment, women's share of STEM employment showed little recuperation beyond childbearing ages in the 1970s. In the total workforce, women's employment increased when they were in their thirties, while in the STEM workforce, women's employment declined in their mid-twenties and remained low until retirement.
[22] Compared to the total workforce, there was a steeper decline in women's share of employment in STEM occupations at older ages in 2011.

Figure 7.
Women's Share of the STEM Workforce by Age: 1970 to 2011
(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



Sources: U.S. Census Bureau, 1970, 1980, 1990, and 2000 decennial censuses and 2011 American Community Survey.

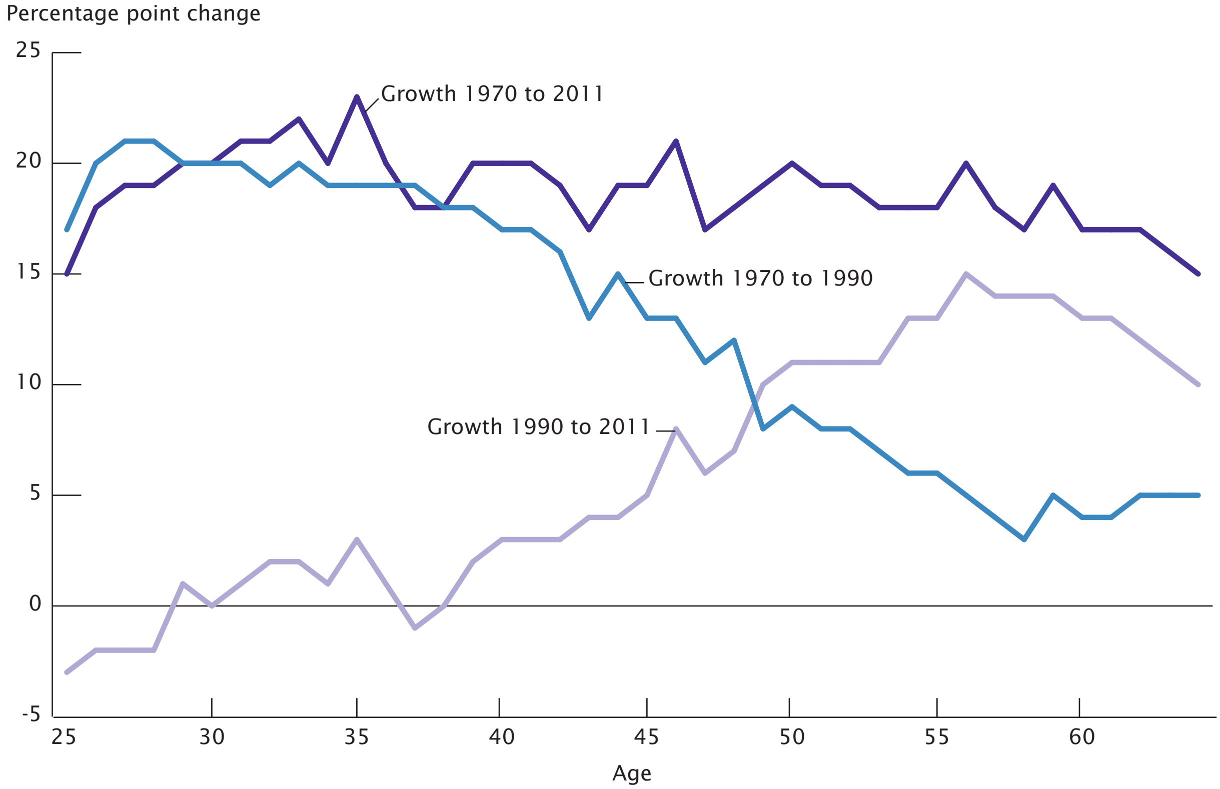
growth in STEM among younger women compared with earlier decades (Figure 8). Most of the growth in women's share of STEM employment among those under the age of 40 occurred between 1970 and 1990.

Among STEM workers, women were less likely than men to have children at home. About 62 percent of women had no children at home, compared with 57 percent of men (Table 4). Compared with other women, women in STEM employment were the least likely to have children at home. About 43 percent of women in STEM-related employment had children at home, compared with 39 percent of women in non-STEM occupations, and 38 percent of women in STEM occupations. Women in STEM-related occupations, which include architects and healthcare practitioners, were also more likely to have given birth in the last 12 months: 5.8 percent, compared with 4.9 percent of STEM workers and 4.4 percent of non-STEM workers.

Figure 8.

Percentage Point Change in Women's Share of the STEM Workforce by Age: 1970 to 2011

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



Sources: U.S. Census Bureau, 1970 and 1990 decennial censuses and 2011 American Community Survey.

STEM Employment by Race and Hispanic Origin

The non-Hispanic White and Asian populations were overrepresented among STEM workers in 2011. About 67 percent of the total workforce was non-Hispanic White, but they held 71 percent of STEM jobs (Figure 9). Asians held 15 percent of the STEM jobs compared with 6 percent of all jobs. Blacks, American Indians and Alaska Natives, and those of Some Other Race were underrepresented in STEM.[23] Blacks held 6 percent of STEM jobs, American Indians and Alaska Natives held 0.4 percent of STEM jobs, and those of Some Other Race held 1 percent of STEM jobs. Hispanics were also

[23] Estimates for Some Other Race include Native Hawaiian or Other Pacific Islanders.

Understanding Race and Hispanic Origin Concepts

The U.S. Census Bureau collects race and Hispanic origin information following the guidance of the U.S. Office of Management and Budget's (OMB) 1997 Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity.[1] These federal standards mandate that race and Hispanic origin (ethnicity) are separate and distinct concepts and that when collecting these data via self-identification, two different questions must be used. Starting in 1997, OMB required federal agencies to use a minimum of five race categories: White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander. For respondents unable to identify with any of these five race categories, OMB approved the inclusion of a sixth category—Some Other Race. Individuals who chose more than one of the six race categories are referred to as the Two or More Races population.

Individuals who responded to the question on race by indicating only one race are referred to as the race-alone population or the group who reported only one race category. The text and figures of this report show estimates for the race-alone population. This report uses five of the OMB-approved categories: White alone, Black or African American alone, American Indian and Alaska Native alone, Asian alone, and Two or More Races. In this report, a sixth category is comprised of those who report Some Other Race or Native Hawaiian or Other Pacific Islander. Because of a small number of sample observations for Native Hawaiian or Other Pacific Islanders employed in a STEM occupation (fewer than 6,000 individuals nationwide), this group is included with Some Other Race.

People who identify their origin as Hispanic or Latino may be any race. For each race group, data in this report include people who reported they were of Hispanic or Latino origin and people who reported they were not Hispanic or Latino. Because Hispanics may be of any race, data in this report for Hispanics overlap with data for race groups. In the analyses presented here, the term "non-Hispanic White" refers to people who are not Hispanic and who reported White and no other race. The Census Bureau uses non-Hispanic Whites as the comparison group for other race groups and Hispanics. For more information on the concepts of race and Hispanic origin, see K. Humes, N. Jones, and R. Ramirez, "Overview of Race and Hispanic Origin: 2010," U.S. Census Bureau, *2010 Census Briefs*, 2011, available at <www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>.

[1] The 1997 Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity, issued by OMB, is available at <www.whitehouse.gov/omb/fedreg/1997standards.html>.

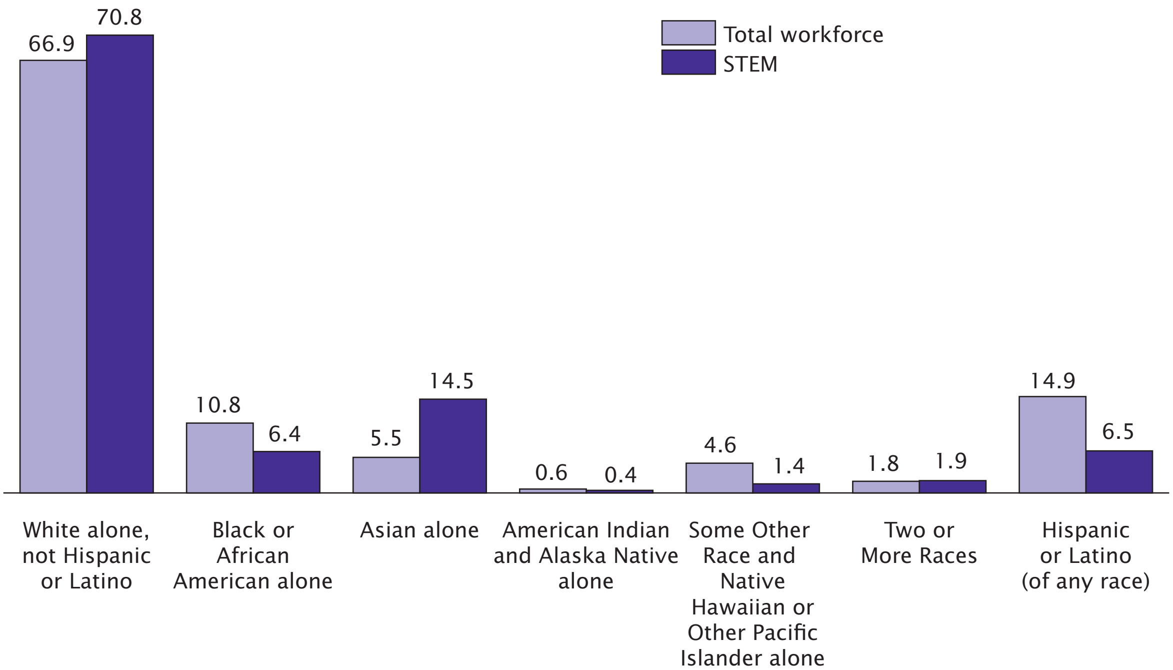
underrepresented in STEM occupations. Although they made up about 15 percent of the workforce, they held 7 percent of STEM jobs.[24]

Racial and ethnic representation differs by detailed STEM occupation. Although the average racial and ethnic distribution of the STEM workforce is 71 percent non-Hispanic White, 15 percent Asian, 6 percent Black, and 7 percent Hispanic, the distribution varies in any given STEM occupation.[25] Using software developer, the largest STEM occupation, as an example, Figure 10 shows that Asian workers are overrepresented, while

[24] The estimates for Black and Hispanic employment in STEM occupations are not statistically different.

[25] The estimates for Black and Hispanic employment in STEM occupations are not statistically different.

Figure 9.
Racial and Ethnic Representation in the STEM Workforce
(In percent. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



Note: Native Hawaiian or Other Pacific Islander alone was combined with Some Other Race because of a small number of sample observations.
Source: U.S. Census Bureau, 2011 American Community Survey.

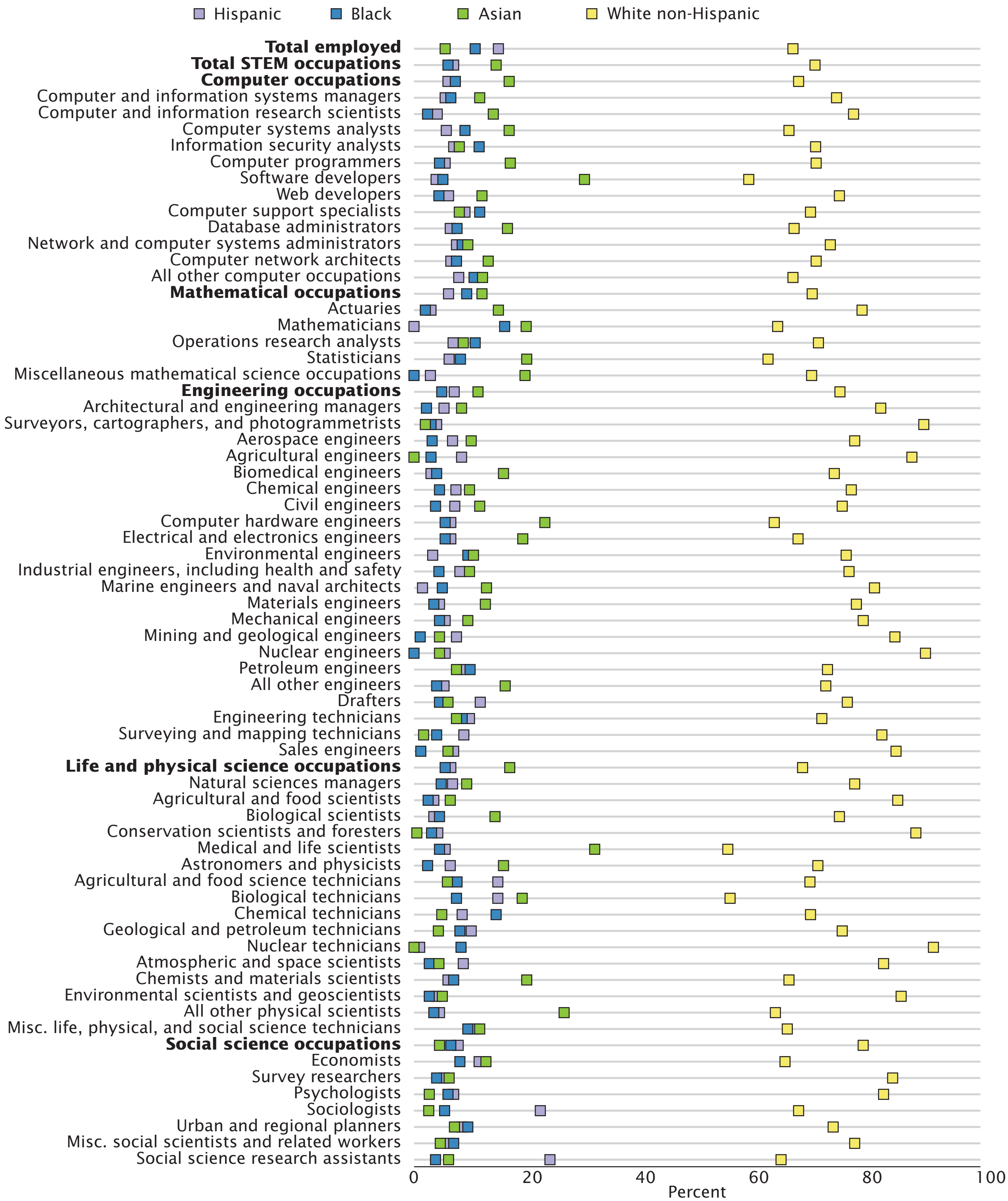
non-Hispanic Whites, Blacks, and Hispanics are underrepresented. About 30 percent of software developers are Asian, while Asians make up 15 percent of STEM occupations. About 59 percent of software developers are non-Hispanic White, 5 percent are Black, and 4 percent are Hispanic (Table 3).

Asian and Hispanic employment in STEM occupations has been growing since 1970 (Figure 11), as has their overall workforce share. While the percentage of STEM workers who are non-Hispanic White declined from 94 percent in 1970 to 71 percent in 2011, the share has mirrored the decline in the non-Hispanic White share of the workforce. Blacks and Hispanics have been consistently underrepresented in STEM occupations since 1970. In 2011, 11 percent of the workforce was Black, but their workforce share of STEM occupations was 6 percent (up from 2 percent in 1970). Although the Hispanic share of the workforce has increased significantly, from 3 percent in 1970 to 15 percent in 2011, Hispanics made up 7 percent of the STEM workforce. The Hispanic share of STEM occupations has not kept pace with the increase in the Hispanic share of the workforce. Asians have been consistently overrepresented in STEM occupations. In 1970, Asians were 1 percent of the workforce, but 2 percent of the STEM workforce. In 2011, Asians remained significantly overrepresented, accounting for 15 percent of STEM workers and 6 percent of the total workforce.

Figure 10.

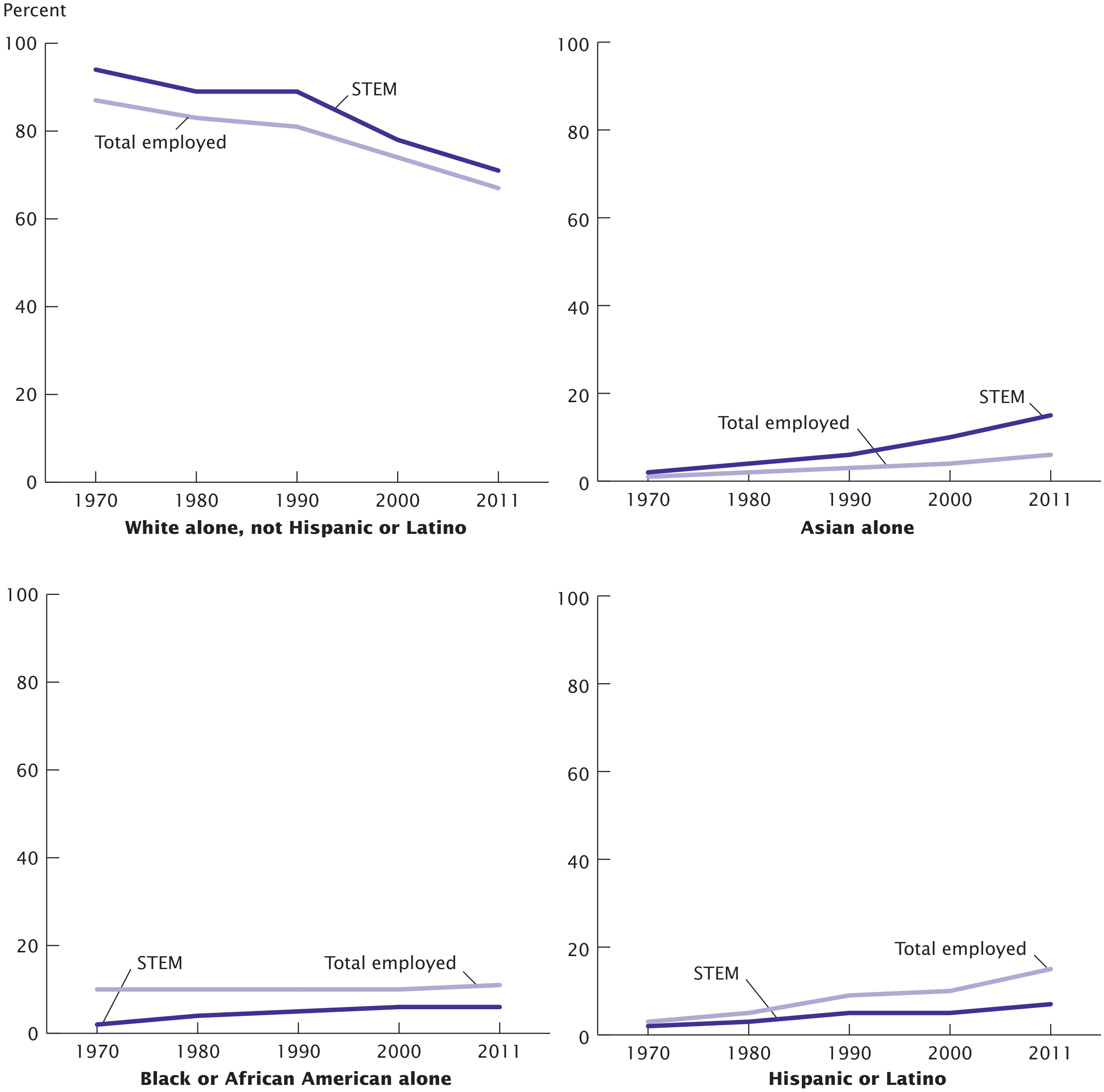
Racial and Ethnic Representation in Detailed STEM Occupations

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



Source: U.S. Census Bureau, 2011 American Community Survey.

Figure 11.
Employment in STEM Occupations by Race and Hispanic Origin: 1970 to 2011
(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



Note: Estimates for the American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races populations are not shown because of a small number of sample observations.
Sources: U.S. Census Bureau, 1970, 1980, 1990, and 2000 decennial censuses and 2011 American Community Survey.

Table 5.

Field of Degree for the First Listed Bachelor's Degree: 2011

(Civilians aged 25 to 64 with a bachelor's degree or higher level of education)

Field of degree	Number	MOE[1]	Percent female	MOE[1]	Percent White alone, not Hispanic or Latino	MOE[1]	Percent Asian alone	MOE[1]	Percent Black or African American alone	MOE[1]	Percent Hispanic or Latino	MOE[1]
Total	**49,543,828**	**161,133**	**52.9**	**0.1**	**74.1**	**0.1**	**9.4**	**0.1**	**7.9**	**0.1**	**6.9**	**0.1**
Science and engineering	**17,335,550**	**85,430**	**41.3**	**0.2**	**70.7**	**0.2**	**13.5**	**0.1**	**7.1**	**0.1**	**6.8**	**0.1**
Computers, mathematics, and statistics	2,213,820	25,361	33.9	0.5	63.9	0.5	19.8	0.5	8.6	0.4	5.8	0.3
Biological, agricultural, and environmental sciences	3,163,602	32,126	45.4	0.5	74.9	0.5	11.9	0.3	5.7	0.3	5.5	0.2
Physical and related science	1,604,216	26,143	37.5	0.7	70.5	0.7	15.5	0.5	6.5	0.4	6.0	0.4
Psychology	2,429,801	25,241	69.5	0.6	75.5	0.5	5.7	0.3	9.2	0.3	7.7	0.3
Social sciences	3,904,676	39,907	47.6	0.4	73.8	0.4	8.4	0.2	8.6	0.3	7.2	0.2
Engineering	3,703,261	35,023	16.3	0.3	64.7	0.4	21.2	0.4	4.5	0.2	7.9	0.3
Multidisciplinary science studies	316,174	10,618	71.1	1.6	73.2	1.3	8.8	1.0	8.0	0.9	7.3	0.7
Science- and engineering-related	**4,520,818**	**40,101**	**71.3**	**0.3**	**71.7**	**0.3**	**11.7**	**0.3**	**8.5**	**0.3**	**6.4**	**0.2**
Business	**10,579,589**	**61,058**	**45.8**	**0.2**	**72.8**	**0.2**	**8.6**	**0.1**	**9.4**	**0.2**	**7.7**	**0.2**
Education	**5,857,864**	**43,523**	**77.2**	**0.2**	**81.5**	**0.3**	**3.1**	**0.1**	**7.4**	**0.2**	**6.6**	**0.2**
Arts, humanities, and other	**11,250,007**	**64,610**	**57.4**	**0.2**	**77.6**	**0.2**	**6.0**	**0.1**	**7.8**	**0.2**	**6.8**	**0.1**
Literature and languages	2,075,751	25,872	67.8	0.5	78.9	0.5	8.0	0.3	5.2	0.3	6.1	0.3
Liberal arts and history	2,382,628	25,009	42.9	0.5	79.8	0.5	5.8	0.2	6.5	0.3	6.2	0.3
Visual and performing arts	2,068,872	29,156	60.9	0.6	78.9	0.5	8.1	0.3	4.7	0.3	6.3	0.3
Communications	2,020,494	26,209	59.1	0.6	78.7	0.6	4.3	0.3	8.4	0.4	6.9	0.3
Other	2,702,262	27,301	58.3	0.6	73.0	0.5	4.3	0.2	12.7	0.4	8.2	0.3

[1] Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimates, the less reliable the estimate. When added to and subtracted from the estimate, the margin of error forms the 90 percent confidence interval.

Note: Estimates for the American Indian and Alaska Native, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races populations are not shown because of a small number of sample observations.

Source: U.S. Census Bureau, 2011 American Community Survey. For more information, see <www.acs.census.gov/acs>.

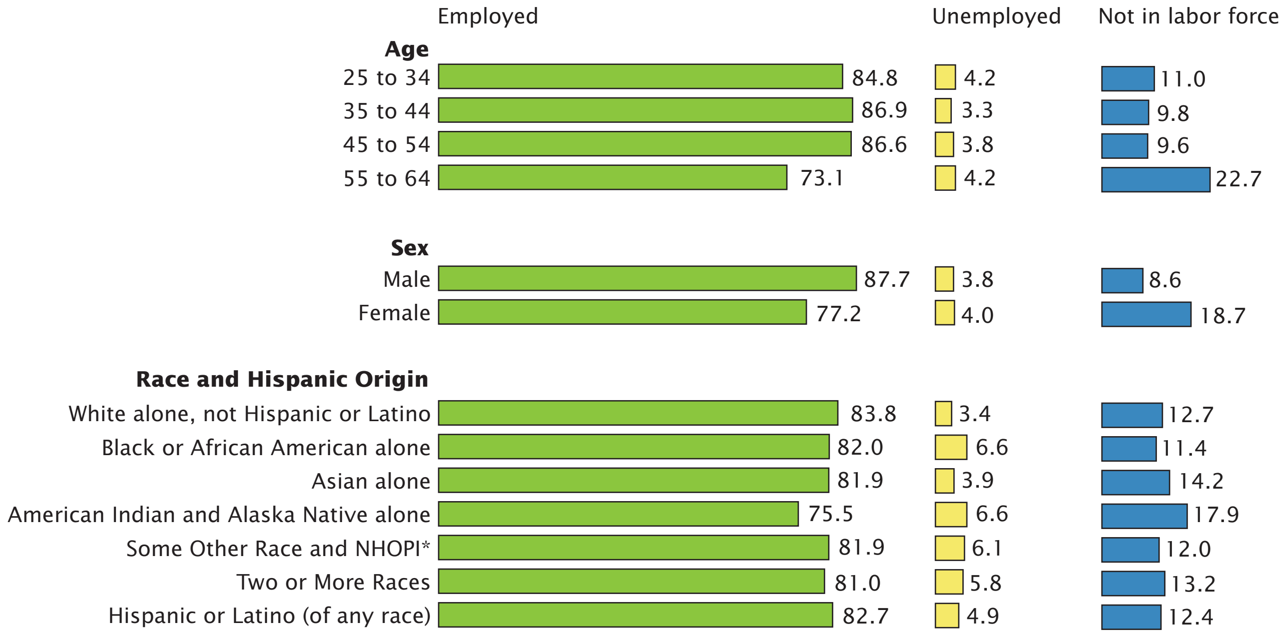
DEMOGRAPHIC CHARACTERISTICS OF SCIENCE AND ENGINEERING GRADUATES IN STEM EMPLOYMENT

Women and Black and Hispanic workers are underrepresented in STEM occupations. One explanation out of many is that these workers are less likely to have a science or engineering background that would facilitate STEM employment. Table 5 shows the distribution of science and engineering graduates by sex, race, and Hispanic origin. Although women are 53 percent of college graduates, they are 41 percent of science and engineering graduates.[26] Of science and engineering fields of study, women are most likely to be found in multidisciplinary science studies (71 percent women) and psychology (70 percent women).[27] About 71 percent of science and engineering graduates are non-Hispanic White, 14 percent are Asian, 7 percent are Black, and

[26] Based on first listed field of bachelor's degree.

[27] The estimates for multidisciplinary science studies and psychology are not statistically different. Multidisciplinary science studies includes sciences that are not elsewhere classified, such as nutrition sciences, combined majors including a science and engineering major, such as accounting and computer science, and nonspecified multidisciplinary studies.

Figure 12.
Employment Status of Science and Engineering Graduates by Age, Sex, and Race and Hispanic Origin
(In percent. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



*Native Hawaiian and Other Pacific Islander alone.
Source: U.S. Census Bureau, 2011 American Community Survey.

7 percent are Hispanic.[28] Relative to their share of college graduates, Blacks and non-Hispanic Whites are underrepresented, Asians are overrepresented, and Hispanics are about equally represented among science and engineering majors.[29]

Table 6 presents the current employment status of science and engineering graduates by age, sex, and race and Hispanic origin.[30] Of all science and engineering graduates, 83.3 percent are employed, 3.9 percent are unemployed, and 12.8 percent are out of the labor force. While the unemployment rate is lower among science and engineering graduates than in the total civilian labor force, unemployment rates vary by race and Hispanic origin.[31] The unemployment rate among Black and American Indian and Alaska Native science and engineering graduates is 6.6 percent. Older science and engineering graduates are less likely to be in the labor force—nearly 23 percent of those aged 55 to 64 are not in the labor force (Figure 12). Female science and engineering graduates are also less likely to be in the labor force. Nearly 1 in 5 female science and engineering graduates are out of the labor force, compared with fewer than 1 in 10 male science and engineering graduates. American Indian and Alaska Native science and engineering graduates have the highest rates of labor force exit: 17.9 percent of American Indian and Alaska Native graduates are out of the labor force.

The majority of workers with a science or engineering degree are not currently employed in a STEM occupation. Only 1 in 4 science and engineering graduates are currently employed in a STEM occupation. Table 7 shows the percentage of science and engineering graduates in STEM employment by age, sex, and race and Hispanic origin.

[28] The estimates for Blacks (7.1 percent) and Hispanics (6.8 percent) round to 7 percent but are statistically different.
[29] The estimates for Hispanic bachelor's degree holders and science and engineering graduates are not statistically different.
[30] From this point forward, to be considered a science and engineering graduate, a person must have listed at least one science and engineering major for field of bachelor's degree, but it does not have to be the first listed major.
[31] Unemployment was 3.9 percent among science and engineering graduates and 6.9 percent for the civilian labor force aged 25 to 64.

Table 6.

Employment Status of Science and Engineering Graduates: 2011

(Civilians aged 25 to 64 with a bachelor's degree in a science and engineering field[1])

Characteristics	Total		Employed				Unemployed				Not in the labor force			
	Number	MOE[2]	Number	MOE[2]	Percent	MOE[2]	Number	MOE[2]	Percent	MOE[2]	Number	MOE[2]	Percent	MOE[2]
Total	**18,173,287**	**89,125**	**15,139,107**	**77,331**	**83.3**	**0.2**	**704,172**	**16,098**	**3.9**	**0.1**	**2,330,008**	**25,627**	**12.8**	**0.1**
Age														
25 to 34 years	5,014,122	43,306	4,251,357	39,505	84.8	0.3	210,410	9,402	4.2	0.2	552,355	12,029	11.0	0.2
35 to 44 years	4,814,958	41,773	4,184,416	40,586	86.9	0.3	160,383	8,028	3.3	0.2	470,159	12,271	9.8	0.3
45 to 54 years	4,479,410	39,280	3,878,707	34,928	86.6	0.3	171,380	6,065	3.8	0.1	429,323	12,371	9.6	0.3
55 to 64 years	3,864,797	33,596	2,824,627	25,492	73.1	0.3	161,999	6,813	4.2	0.2	878,171	15,263	22.7	0.3
Sex														
Male	10,574,099	63,577	9,270,325	56,962	87.7	0.2	397,524	11,094	3.8	0.1	906,250	17,076	8.6	0.1
Female	7,599,188	45,399	5,868,782	38,083	77.2	0.3	306,648	10,477	4.0	0.1	1,423,758	18,050	18.7	0.2
Race and Hispanic Origin														
White alone	13,811,796	69,225	11,572,387	61,829	83.8	0.2	485,800	13,724	3.5	0.1	1,753,609	24,425	12.7	0.2
White alone, not Hispanic or Latino	12,907,927	61,004	10,821,933	55,594	83.8	0.2	443,854	12,409	3.4	0.1	1,642,140	23,557	12.7	0.2
Black or African American alone	1,284,256	23,835	1,052,888	21,203	82.0	0.6	85,020	5,428	6.6	0.4	146,348	6,510	11.4	0.4
Asian alone	2,401,191	23,306	1,966,948	19,871	81.9	0.4	92,914	4,971	3.9	0.2	341,329	9,662	14.2	0.4
American Indian and Alaska Native alone	59,892	3,941	45,246	3,318	75.5	3.2	3,938	971	6.6	1.5	10,708	1,825	17.9	2.8
Some Other Race and Native Hawaiian or Other Pacific Islander alone[3]	271,266	10,950	222,168	9,235	81.9	1.4	16,481	2,832	6.1	1.0	32,617	3,535	12.0	1.2
Two or More Races	344,886	11,819	279,470	10,904	81.0	1.2	20,019	2,421	5.8	0.7	45,397	3,861	13.2	1.0
Hispanic or Latino (of any race)	1,233,794	21,856	1,020,800	20,174	82.7	0.7	60,524	5,076	4.9	0.4	152,470	7,649	12.4	0.6

[1] Includes individuals with multiple majors who report having at least one major in a science or engineering field at the bachelor's level.
[2] Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimates, the less reliable the estimate. When added to and subtracted from the estimate, the margin of error forms the 90 percent confidence interval.
[3] Native Hawaiian and Other Pacific Islander alone was combined with Some Other Race because of a small number of sample observations.
Source: U.S. Census Bureau, 2011 American Community Survey. For more information, see <www.acs.census.gov/acs>.

Younger workers are more likely to be employed in a STEM occupation than older workers. About 27 percent of workers under the age of 45 with a science or engineering degree are employed in a STEM occupation. Figure 13 presents the percentage of science and engineering graduates currently employed in a STEM occupation by age, sex, and race and Hispanic origin.

Employment in STEM occupations among science and engineering graduates also varies by race and Hispanic origin. Among science and engineering graduates, Asians are the most likely to be in a STEM occupation (Figure 13). About 41 percent of Asians with a science and engineering degree are currently employed in a STEM field, followed by individuals who self-identify as Two or More Races (24 percent) and non-Hispanic White (23 percent).[32]

Men make up the majority of science and engineering graduates. About 61 percent of science and engineering graduates were men.[33] Of these, 31 percent were employed in a STEM occupation and made up 76 percent of the STEM workforce (Figure 14). In contrast, women made up 39 percent of science and engineering graduates and 15 percent were employed in a STEM occupation, accounting for 24 percent of the STEM workforce. Even among science and engineering graduates, men were employed in a STEM occupation at about twice the rate of women.

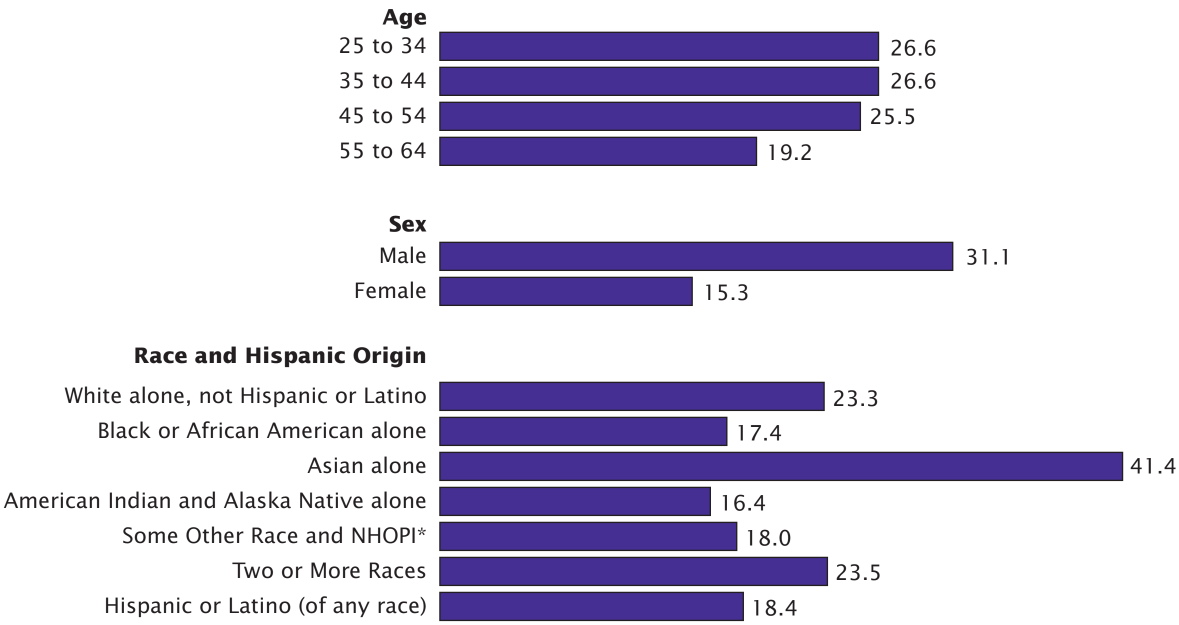
[32] The estimates for Two or More Races and non-Hispanic White are not statistically different.
[33] Based on all listed fields of bachelor's degree.

Table 7.
Selected Characteristics by Employment in STEM Occupations Among Science and Engineering Graduates: 2011
(Civilian employed aged 25 to 64 with a bachelor's degree in a science and engineering field[1])

Characteristics	Relationship between science and engineering education and employment					STEM workforce with a science or engineering bachelor's degree	
	Science and engineering degree holders		Occupational distribution			STEM workforce share	
	Percent	MOE[2]	Occupation	Percent	MOE[2]	Percent	MOE[1]
Total	**100.0**	**X**	**STEM**	**24.9**	**0.2**	**100.0**	**X**
			STEM-related	**10.7**	**0.2**		
			Non-STEM	**64.3**	**0.2**		
Age							
25 to 34 years	28.1	0.2	STEM	26.6	0.4	29.9	0.5
			STEM-related	10.6	0.3		
			Non-STEM	62.9	0.5		
35 to 44 years	27.6	0.2	STEM	26.6	0.5	29.5	0.5
			STEM-related	10.7	0.3		
			Non-STEM	62.6	0.5		
45 to 54 years	25.6	0.2	STEM	25.5	0.3	26.2	0.4
			STEM-related	10.4	0.3		
			Non-STEM	64.1	0.4		
55 to 64 years	18.7	0.2	STEM	19.2	0.3	14.4	0.3
			STEM-related	11.5	0.3		
			Non-STEM	69.3	0.4		
Sex							
Male	61.2	0.2	STEM	31.1	0.3	76.3	0.3
			STEM-related	8.8	0.2		
			Non-STEM	60.1	0.3		
Female	38.8	0.2	STEM	15.3	0.2	23.7	0.3
			STEM-related	13.8	0.2		
			Non-STEM	71.0	0.3		
Race and Hispanic Origin							
White alone	76.4	0.2	STEM	23.0	0.2	70.6	0.4
			STEM-related	10.8	0.2		
			Non-STEM	66.2	0.3		
White alone, not Hispanic or Latino	71.5	0.2	STEM	23.3	0.2	66.9	0.4
			STEM-related	10.9	0.2		
			Non-STEM	65.8	0.3		
Black or African American alone	7.0	0.1	STEM	17.4	0.8	4.9	0.2
			STEM-related	9.8	0.6		
			Non-STEM	72.7	0.9		
Asian alone	13.0	0.1	STEM	41.4	0.6	21.5	0.4
			STEM-related	11.4	0.4		
			Non-STEM	47.3	0.6		
American Indian and Alaska Native alone	0.3	0.1	STEM	16.4	2.6	0.2	0.1
			STEM-related	7.4	1.8		
			Non-STEM	76.2	3.3		
Some Other Race and Native Hawaiian or Other Pacific Islander alone[3]	1.5	0.1	STEM	18.0	1.5	1.1	0.1
			STEM-related	9.4	1.3		
			Non-STEM	72.6	1.8		
Two or More Races	1.8	0.1	STEM	23.5	1.6	1.7	0.1
			STEM-related	10.8	0.9		
			Non-STEM	65.7	1.8		
Hispanic (of any race)	6.7	0.1	STEM	18.4	0.7	5.0	0.2
			STEM-related	9.0	0.6		
			Non-STEM	72.6	0.8		

X Not applicable.
[1] Includes individuals with multiple majors who report having at least one major in a science or engineering field at the bachelor's level.
[2] Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimates, the less reliable the estimate. When added to and subtracted from the estimate, the margin of error forms the 90 percent confidence interval.
[3] Native Hawaiian and Other Pacific Islander alone was combined with Some Other Race because of a small number of sample observations.
Source: U.S. Census Bureau, 2011 American Community Survey. For more information, see <www.acs.census.gov/acs>.

Figure 13.
Percentage of Science and Engineering Graduates Currently Employed in a STEM Occupation by Age, Sex, and Race and Hispanic Origin
(In percent. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)

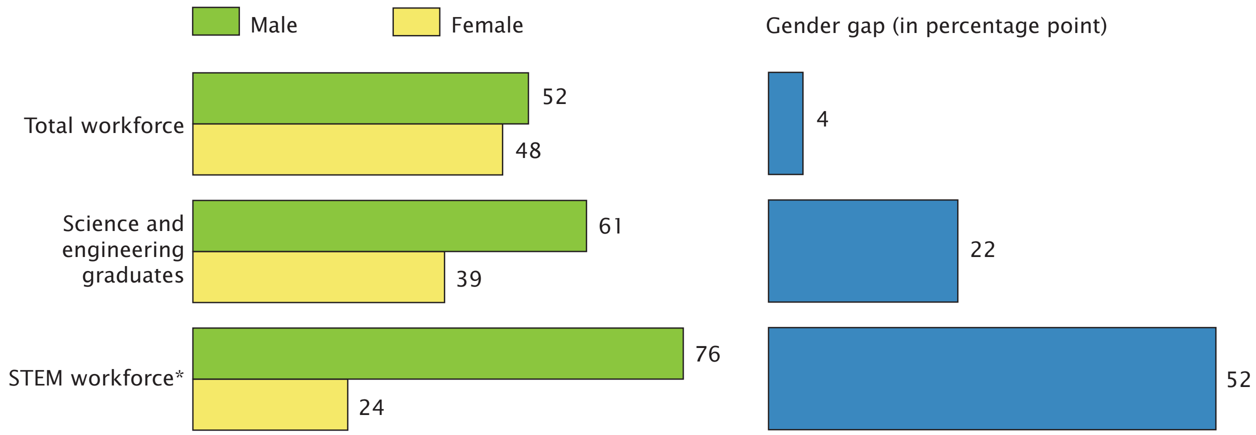


*Native Hawaiian and Other Pacific Islander alone.
Source: U.S. Census Bureau, 2011 American Community Survey.

Science and engineering graduates earn more per year when they are employed in STEM occupations (Figure 15). Among science and engineering graduates that worked full-time, year-round, men earned $85,000 per year compared with $58,800 among women. The gender earnings gap narrows when comparing science and engineering graduates employed in a STEM occupation, indicating that STEM employment boosts earnings among women more than among men. Women employed in STEM earn about $16,300 more per year compared with women trained in science and engineering but not employed in STEM. While Asians earned the most in the total workforce ($80,700), and among the most in the STEM workforce ($89,500), STEM employment provides a larger earnings gain among Blacks, Hispanics, and those who report Some Other Race, increasing their earnings by $17,000, $18,300, and $22,500 per year, respectively.[34]

[34] The median earnings for non-Hispanic White and Asian STEM workers are not statistically different. The earnings gain for STEM employment among Blacks and Hispanics and among Hispanics and those who report Some Other Race are not statistically different.

Figure 14.
Share of Total Employment, Science and Engineering Degrees, and STEM Employment by Sex
(In percent. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



*With a science or engineering bachelor's degree.
Source: U.S. Census Bureau, 2011 American Community Survey.

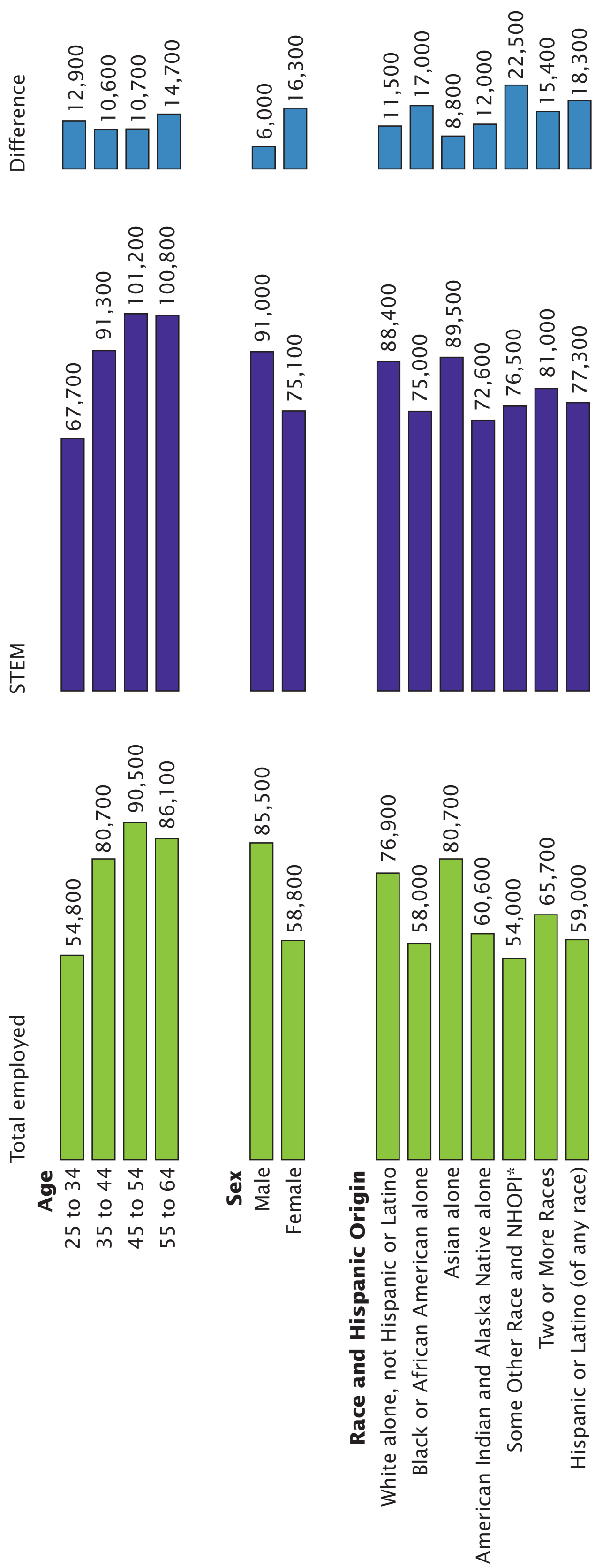
SOURCE OF THE ESTIMATES

The American Community Survey (ACS) is a nationwide survey designed to provide communities with reliable and timely demographic, social, economic and housing data for congressional districts, counties, places, and other localities every year. It has an annual sample size of about 3.5 million addresses across the United States and Puerto Rico and includes both housing units and group quarters (e.g., nursing homes and prisons). The ACS is conducted in every county throughout the nation, and every municipio in Puerto Rico, where it is called the Puerto Rico Community Survey. For information on the ACS sample design and other topics, visit <www.census.gov/acs/www>.

ACCURACY OF THE ESTIMATES

The data presented in this report are based on the ACS sample interviewed in January 2011 through December 2011. The estimates based on this sample describe the actual average value of characteristics for the household and group quarter populations over this period of collection. Sampling error is the difference between an estimate based on a sample and the corresponding value that would be obtained if the estimate were based on the entire population (as from a census). Measures of sampling error are provided in the form of margins of error for all estimates included in this report. All comparative statements in this report have undergone statistical testing, and comparisons are significant at the 90 percent level unless otherwise noted. In addition to sampling error, nonsampling error may be introduced during any of the operations used to collect and process survey data such as editing, reviewing, or keying data from questionnaires. For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, please see the 2011 ACS Accuracy of the Data document located at <www.census.gov/acs/www/Downloads/data_documentation/Accuracy/ACS_Accuracy_of_Data_2011.pdf>.

Figure 15.
Median Earnings for Science and Engineering Graduates Who Work Full-Time, Year-Round by Age, Sex, and Race and Hispanic Origin
(In dollars. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/acs/www/*)



*Native Hawaiian and Other Pacific Islander alone.
Source: U.S. Census Bureau, 2011 American Community Survey.

MORE INFORMATION

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SUGGESTED CITATION

Liana Christin Landivar, 2013, “Disparities in STEM Employment by Sex, Race, and Hispanic Origin,” *American Community Survey Reports*, ACS-24, U.S. Census Bureau, Washington, DC.