The Relationship Between Science and Engineering Education and Employment in STEM Occupations

American Community Survey Reports

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INTRODUCTION

Science, technology, engineering, and mathematics (STEM) workers account for just 6 percent of the U.S. workforce, yet they are essential to economic growth, innovation, and global competitiveness. Large investments in science and technology during the twentieth century led to the creation of new industries and employment opportunities, increased economic prosperity, and improved quality of life.[1] Government and private industry have emphasized the need to increase the STEM workforce. Leaders cite concerns with national security, maintenance of international standing in research and development, and leadership in innovation. In 2007, Congress passed the America COMPETES Act, reauthorized in 2010, to increase economic competitiveness by promoting STEM education and increasing research investment.[2] The National Academy of Sciences, National Academy of Engineering, and Institute of Medicine report *Rising Above the Gathering Storm* also calls for increased funding for K–12, college, and graduate education in STEM fields and for research and development.[3]

A question one might ask is whether increased training in science and engineering yields more STEM workers. This report explores the links between educational attainment, science and engineering training in college, and employment in a STEM occupation.[4] Several pathways may increase the STEM workforce. Science and engineering training in college could result in subsequent STEM employment. Alternatively, or in addition, the number of STEM workers without a bachelor's degree in a science and engineering field could grow. This report uses the 2011 American Community Survey (ACS) to provide statistics on the educational attainment of STEM workers, detailing how many STEM workers are college and noncollege graduates. This report also shows the leading STEM occupations by educational attainment, and the percentage of science and engineering graduates who are currently employed in a STEM occupation. Finally, the report shows the geographic concentration of STEM workers by educational attainment.

HIGHLIGHTS

- In 2011, there were 7.2 million STEM workers aged 25 to 64, accounting for 6 percent of the workforce. Half of STEM workers worked in computer occupations. An additional 7.8 million workers were employed in STEM-related occupations, most of which were in health care.
- About 70 percent of STEM workers had at least a bachelor's degree, while 30 percent of STEM workers had less than a bachelor's degree.

[1] Committee on Science, Engineering, and Public Policy, 2010, "Rising Above the Gathering Storm, Revisited: Rapidly Approaching Category 5," 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] Committee on Science, Engineering, and Public Policy, 2007, "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future," National Academy of Sciences, National Academy of Engineering, and Institute of Medicine of the National Academies, The National Academies Press, Washington, DC.

[4] To learn more about the demographic characteristics of STEM workers, see <www.census.gov/people/io/publications/reports.html>.

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- Of the 40.6 million employed college graduates aged 25 to 64, 36 percent reported a science or engineering major for their bachelor's degree.
- The vast majority of workers who have been trained in science and engineering are not currently working in a STEM occupation. Only 26 percent of science and engineering graduates are currently employed in a STEM occupation. Instead, they are employed in fields such as non-STEM management, health care, law, education, social work, accounting, or counseling.

WHAT IS STEM?

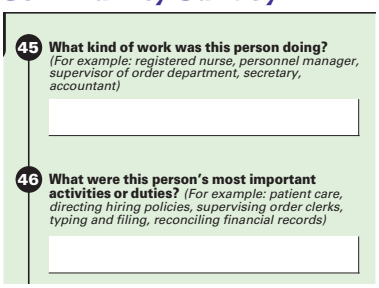
STEM workers are those employed in science, technology, engineering, and mathematics occupations. This includes computer and mathematical occupations, engineers, engineering technicians, life scientists, physical scientists, social scientists, and science technicians. STEM is subject-matter driven. As 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 about 6 percent of the civilian workforce aged 25 to 64.

CLASSIFICATION

Occupational Classification

Occupation statistics are compiled from data that are coded based on the 2010 Standard Occupational Classification (SOC) manual.[5] 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.[6] Census Bureau occupation codes, based on the 2010 SOC, provide 539 specific occupational categories arranged into 23 major occupational groups.[7] ACS respondents were asked to write descriptions of the type of work and activities they do on the job (Figure 1). These responses were then coded into one of the 539 Census Bureau occupations.

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



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

[6] 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."

[7] 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 the Census Bureau aggregates smaller categories for confidentiality and statistical precision.

STEM Occupation Classification

There has been a lack of consensus on who qualifies as a STEM worker.[8] To enhance comparability of data 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.[9] 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.[10] This report follows the SOCPC recommendations and is the first Census Bureau report issued with the recommended STEM worker classification. To apply the recommendations to Census Bureau occupations, some exceptions were necessary because of a lack of detail to separate STEM and non-STEM workers (e.g., postsecondary teachers are not separated by subject matter) (Table 1). The final list of Census Bureau occupations used in this report is available at <www.census.gov/people/io/methodology/>.

[8] 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>.

[9] 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.

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

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. computer and information systems managers, architectural and engineering managers, natural science managers, and sales engineers)
	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

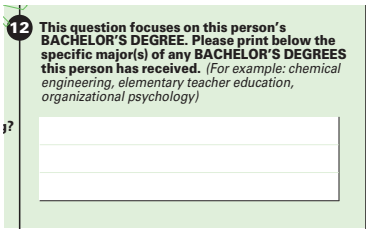
Note: The full list of Census STEM occupations used in this report and occupation-specific classification is available at <www.census.gov/people/io/methodology/>.

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. 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 five 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.[11]

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



[11] 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: <www.census.gov/acs/www/data_documentation/pums_documentation/>.

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 science 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)

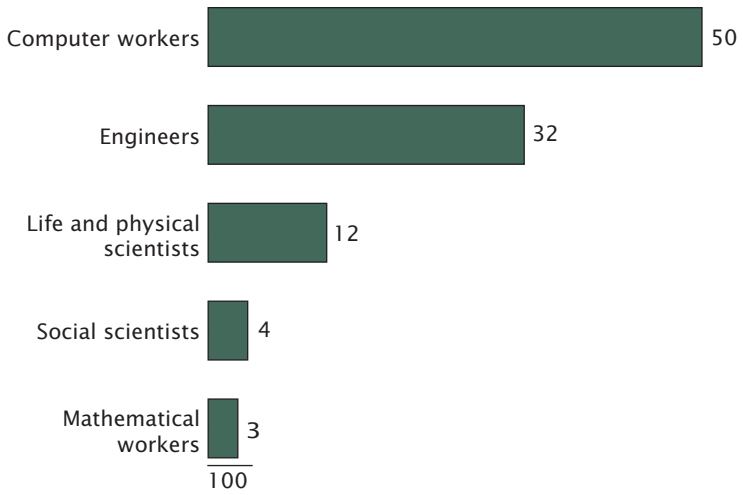
THE RELATIONSHIP BETWEEN FIELD OF BACHELOR'S DEGREE AND EMPLOYMENT IN STEM OCCUPATIONS

Employment in STEM Occupations

In 2011, there were 7.2 million STEM workers aged 25 to 64, accounting for 6 percent of the workforce. Half of STEM workers worked in computer occupations (Figure 3). Engineers and engineering technicians were 32 percent of the STEM workforce, followed by life and physical scientists (12 percent), social scientists (4 percent), and workers employed in mathematical occupations (3 percent).[12]

[12] The estimate for social scientists is not statistically different from the estimate for mathematics occupations.

Figure 3.
Occupational Distribution of STEM Workers Aged 25 to 64: 2011
(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.

Table 3.

Employment in STEM Occupations: 2011

(Civilian employed aged 25 to 64)

Occupation[1]	Number	MOE[2]	Percent of STEM workforce
Total STEM	**7,227,620**	**48,618**	**100.00**
Computer occupations	**3,614,046**	**33,846**	**50.00**
Computer and information systems managers	504,161	13,167	6.98
Computer and information research scientists	14,981	1,747	0.41
Computer systems analysts	431,894	12,361	5.98
Information security analysts	47,196	3,987	0.65
Computer programmers	415,229	9,773	5.75
Software developers, applications and systems software	851,921	16,796	11.79
Web developers	149,739	7,382	2.07
Computer support specialists	463,148	12,148	6.41
Database administrators	97,415	5,637	1.35
Network and computer systems administrators	220,363	8,475	3.05
Computer network architects	91,677	6,922	1.27
Computer occupations, all other	326,322	10,125	4.51
Mathematical occupations	**202,667**	**7,916**	**2.80**
Actuaries	22,069	2,387	0.31
Mathematicians	2,450	955	0.03
Operations research analysts	133,100	6,571	1.84
Statisticians	42,358	3,920	0.59
Miscellaneous mathematical science occupations	2,690	868	0.04
Engineering occupations	**2,305,215**	**26,370**	**31.89**
Architectural and engineering managers	130,207	5,603	1.80
Surveyors, cartographers, and photogrammetrists	35,190	3,191	0.49
Aerospace engineers	124,902	5,649	1.73
Agricultural engineers	2,389	891	0.03
Biomedical engineers	13,383	1,851	0.19
Chemical engineers	47,214	3,203	0.65
Civil engineers	262,066	9,443	3.63
Computer hardware engineers	58,517	4,846	0.81
Electrical and electronics engineers	203,538	8,039	2.82
Environmental engineers	24,163	2,364	0.33
Industrial engineers, including health and safety	156,517	6,969	2.17
Marine engineers and naval architects	10,005	1,318	0.14
Materials engineers	29,445	2,525	0.41
Engineering occupations—Con.			
Mechanical engineers	189,241	6,772	2.62
Mining and geological engineers	7,889	1,240	0.11
Nuclear engineers	5,681	1,461	0.08
Petroleum engineers	23,522	3,059	0.33
Engineers, all other	396,704	11,787	5.49
Drafters	146,622	6,217	2.03
Engineering technicians, except drafters	352,707	8,425	4.88
Surveying and mapping technicians	56,169	4,257	0.78
Sales engineers	29,144	3,003	0.40
Life and physical science occupations	**848,514**	**16,315**	**11.74**
Natural sciences managers	22,536	1,991	0.31
Agricultural and food scientists	25,509	2,184	0.35
Biological scientists	72,804	4,924	1.01
Conservation scientists and foresters	23,764	2,382	0.33
Medical and all other life scientists[3]	122,748	6,204	1.70
Astronomers and physicists	11,331	1,760	0.16
Agricultural and food science technicians	26,166	2,931	0.36
Biological technicians	19,054	2,553	0.26
Chemical technicians	61,175	3,889	0.85
Geological and petroleum technicians	14,888	2,324	0.21
Nuclear technicians	3,229	868	0.04
Atmospheric and space scientists	8,407	1,405	0.12
Chemists and materials scientists	76,339	4,632	1.06
Environmental scientists and geoscientists	66,502	4,444	0.92
Physical scientists, all other	180,332	6,788	2.50
Miscellaneous life, physical, and social science technicians	113,730	5,271	1.57
Social science occupations	**257,178**	**7,674**	**3.56**
Economists	24,460	2,564	0.34
Survey researchers	1,602	628	0.02
Psychologists	164,516	6,551	2.28
Sociologists	3,196	969	0.04
Urban and regional planners	18,442	2,210	0.26
Miscellaneous social scientists and related workers	41,600	3,266	0.58
Social science research assistants	3,362	1,062	0.05

[1] Occupation codes are based on the 2010 Standard Occupational Classification (SOC).

[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] Medical and all other life scientists were combined because of a small number of all other life scientists.

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

Table 4.

Employment in STEM-Related Occupations: 2011

(Civilian employed aged 25 to 64)

Occupation[1]	Number	MOE[2]	Percent of STEM-related workforce	Occupation[1]	Number	MOE[2]	Percent of STEM-related workforce
Total STEM-related	**7,829,769**	**49,792**	**100.00**				
Medical and health services managers	552,493	12,061	7.06	Nurse midwives	2,701	787	0.03
Architects	154,538	7,522	1.97	Nurse practitioners	94,570	6,016	1.21
Chiropractors	51,545	4,550	9.33	Health diagnosing and treating practitioners, all other	19,400	2,520	0.25
Dentists	150,227	6,159	1.92	Clinical laboratory technologists and technicians	300,755	8,816	3.84
Dietitians and nutritionists	73,771	4,706	0.94	Dental hygienists	144,764	6,915	1.85
Optometrists	32,083	2,927	0.41	Diagnostic related technologists and technicians	290,075	10,107	3.70
Pharmacists	237,451	10,334	3.03	Emergency medical technicians and paramedics	148,509	6,932	1.90
Physicians and surgeons	809,980	16,793	10.34	Health practitioner support technologists and technicians	417,450	11,601	5.33
Physician assistants	108,922	5,163	1.39	Licensed practical and licensed vocational nurses	586,722	14,383	7.49
Podiatrists	7,161	1,269	0.09	Medical records and health information technicians	93,843	5,184	1.20
Audiologists	13,539	1,930	0.17	Opticians, dispensing	44,255	3,910	0.57
Occupational therapists	85,491	4,377	1.09	Miscellaneous health technologists and technicians	108,081	6,274	1.38
Physical therapists	198,104	7,492	2.53	Other healthcare practitioners and technical occupations	83,351	5,176	1.06
Radiation therapists	11,051	1,445	0.14				
Recreational therapists	11,004	1,496	0.14				
Respiratory therapists	98,958	6,030	1.26				
Speech-language pathologists	118,338	4,990	1.51				
Exercise physiologists	2,797	836	0.04				
Therapists, all other	129,175	5,937	1.65				
Veterinarians	63,858	4,330	0.82				
Registered nurses	2,558,418	28,951	32.68				
Nurse anesthetists	26,389	2,714	0.34				

[1] Occupation codes are based on the 2010 Standard Occupational Classification (SOC).

[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.

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

Software developers was the largest detailed STEM occupation, employing 12 percent of all STEM workers (Table 3). An additional 7.8 million workers were employed in STEM-related occupations, most of which were in health care. The largest detailed STEM-related occupation was registered nurse, making up a third of the STEM-related workforce (Table 4).

Educational Attainment of STEM Workers

Figure 4 shows that the majority of STEM workers had at least a bachelor's degree, and a bachelor's degree was the most typical level of education among STEM workers. Of STEM workers, 42 percent had a bachelor's degree, 21 percent had a master's degree, 1 percent had a professional degree (e.g., J.D., M.D.), and 6 percent had a doctorate degree. STEM-related workers were more likely to have a bachelor's degree or an associate's degree (29 and 22 percent, respectively) as their highest level of educational attainment. A larger percentage of STEM-related workers than STEM workers had a professional degree—14 percent compared with 1 percent—because the majority of STEM-related workers are in health care, where professional degrees are common. Non-STEM workers were more likely to have a high school diploma as their highest level of educational attainment (28 percent).

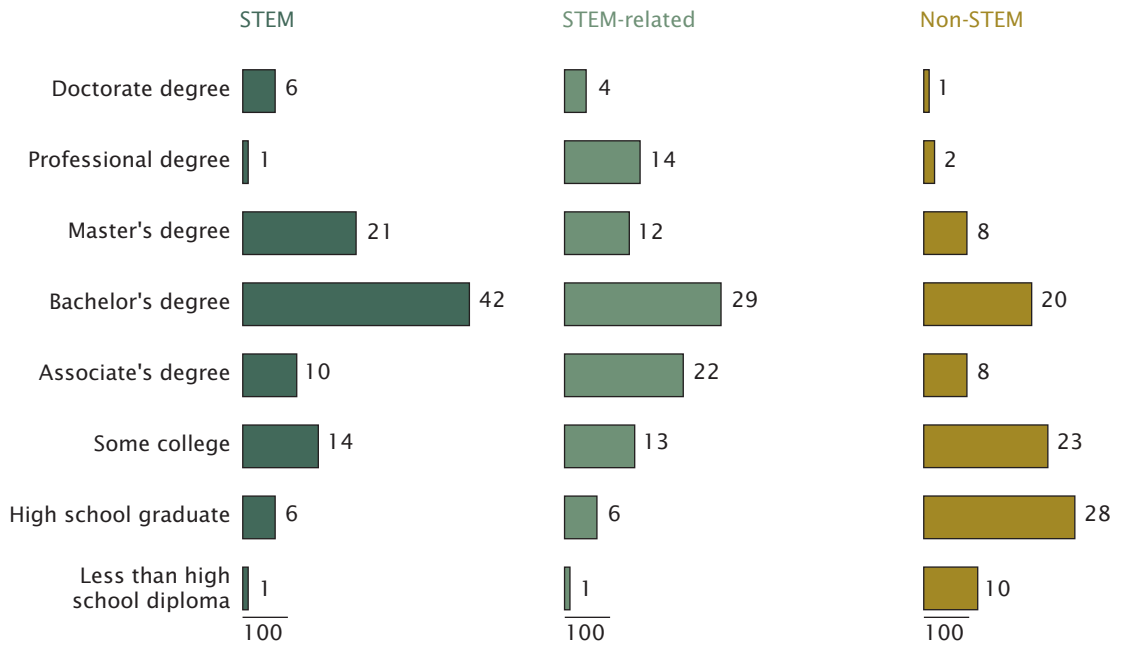
Employment in STEM Occupations Among Noncollege Graduates

In 2011, about 30 percent of the STEM workforce had less than a bachelor's degree: 10 percent held an associate's degree, 14 percent had some college education but no degree, 6 percent had a high school diploma, and 1 percent had less than a high school diploma (Table 5).

Figure 4.

Educational Attainment Distribution of STEM, STEM-Related, and Non-STEM Workers Aged 25 to 64: 2011

(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.

Table 5.

Educational Attainment by Field of Employment: 2011

(Civilian employed aged 25 to 64)

Educational attainment	Total workforce				STEM				STEM-related				Non-STEM			
	Number	MOE[1]	Percent	MOE[1]	Number	MOE[1]	Percent	MOE[1]	Number	MOE[1]	Percent	MOE[1]	Number	MOE[1]	Percent	MOE[1]
Total	**116,445,308**	**106,429**	**100**	**0.1**	**7,227,620**	**48,618**	**100**	**0.1**	**7,829,769**	**49,792**	**100**	**0.1**	**101,387,919**	**104,828**	**100**	**0.1**
Less than high school diploma	10,419,424	69,443	8.9	0.1	45,849	3,938	0.6	0.1	43,583	3,861	0.6	0.1	10,329,992	68,525	10.2	0.1
High school graduate[2]	29,103,676	87,679	25.0	0.1	415,688	11,722	5.8	0.2	464,417	11,981	5.9	0.2	28,223,571	84,081	27.8	0.1
Some college	25,517,458	87,818	21.9	0.1	1,027,137	17,396	14.2	0.2	1,044,761	18,012	13.3	0.2	23,445,560	85,821	23.1	0.1
Associate's degree	10,817,523	52,998	9.3	0.1	690,713	15,227	9.6	0.2	1,700,518	21,366	21.7	0.2	8,426,292	49,984	8.3	0.1
Bachelor's degree	25,515,856	102,592	21.9	0.1	3,013,947	28,397	41.7	0.3	2,246,450	24,735	28.7	0.2	20,255,459	94,919	20.0	0.1
Master's degree	10,542,113	61,810	9.1	0.1	1,513,859	20,007	20.9	0.2	913,097	16,680	11.7	0.2	8,115,157	56,144	8.0	0.1
Professional degree	2,801,886	30,491	2.4	0.1	98,092	4,904	1.4	0.1	1,088,383	18,575	13.9	0.2	1,615,411	21,431	1.6	0.1
Doctorate degree	1,727,372	22,924	1.5	0.1	422,335	11,283	5.8	0.2	328,560	11,268	4.2	0.1	976,477	16,122	1.0	0.1

[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] Includes those with a GED or equivalent credential.

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

Table 6.
Educational Attainment by Occupational Distribution: 2011

(Civilian employed aged 25 to 64)

Educational attainment	Total workforce		Field of employment		
	Percent	MOE[1]	Occupation	Percent	MOE[1]
Total	**100.0**	**0.1**	**STEM**	**6.2**	**0.1**
			STEM-related	**6.7**	**0.1**
			Non-STEM	**87.1**	**0.1**
High school or less	33.9	0.1	STEM	1.2	0.1
			STEM-related	1.3	0.1
			Non-STEM	97.5	0.1
Some college	21.9	0.1	STEM	4.0	0.1
			STEM-related	4.1	0.1
			Non-STEM	91.9	0.1
Associate's degree	9.3	0.1	STEM	6.4	0.1
			STEM-related	15.7	0.2
			Non-STEM	77.9	0.2
Bachelor's degree	21.9	0.1	STEM	11.8	0.1
			STEM-related	8.8	0.1
			Non-STEM	79.4	0.1
Master's degree	9.1	0.1	STEM	14.4	0.2
			STEM-related	8.7	0.2
			Non-STEM	77.0	0.2
Professional degree	2.4	0.1	STEM	3.5	0.2
			STEM-related	38.8	0.5
			Non-STEM	57.7	0.5
Doctorate degree	1.5	0.1	STEM	24.4	0.6
			STEM-related	19.0	0.6
			Non-STEM	56.5	0.6

[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.

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

However, individuals with less than a bachelor's degree were much less likely to be employed in a STEM occupation. Only 1 percent of those who had a high school or lower level of education are currently employed in STEM, compared with 4 percent of those with some college education, 6 percent of those with an associate's degree, 12 percent of those with a bachelor's degree, 14 percent of those with a master's degree, 4 percent of those with a professional degree, and 24 percent of those with a doctorate degree (Table 6 and Figure 5).

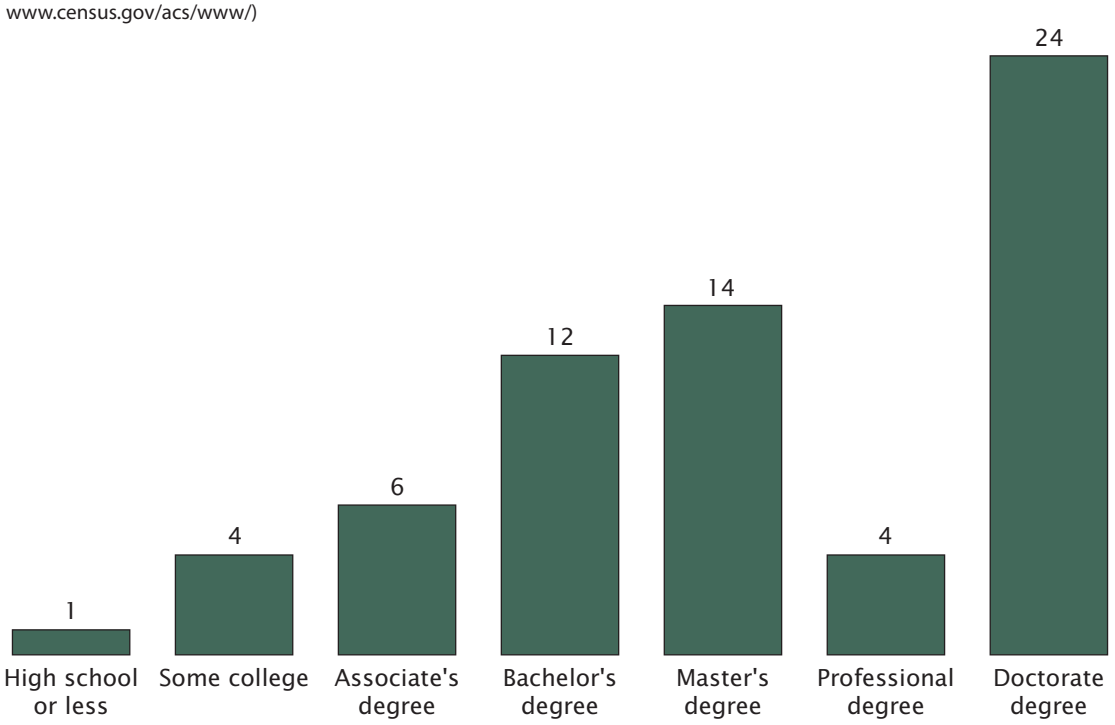
The majority of STEM workers without a bachelor's degree were in computer occupations or engineering support. The largest occupation for those with a high school diploma or less was engineering technician, while the largest occupations for those with some college or an associate's degree were computer support specialist and engineering technician (Table 7).[13]

[13] The estimates for computer support specialist and engineering technician are not statistically different.

Figure 5.

Percentage of Workers Aged 25 to 64 Currently Employed in STEM by Educational Attainment: 2011

(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 Among College Graduates

Of the 40.6 million college graduates, 36 percent reported a science or engineering major for their bachelor's degree (Table 8). An additional 9 percent had a science- or engineering-related major (e.g., nursing, architecture). College graduates made up 70 percent of the STEM workforce, and most had a science or engineering bachelor's degree. Of college graduates employed in a STEM occupation, 73 percent had a science or engineering major, 5 percent had a science- or engineering-related major, and 22 percent were non-science or engineering majors.

Table 7.

Top Ten STEM Occupations by Educational Attainment for Workers Aged 25 to 64: 2011

Occupations	Number of workers	Occupations	Number of workers
High School Diploma or Less		**Master's Degree**	
Engineering technicians	92,000	Software developers	253,800
Computer support specialists	49,200	Computer and information systems managers	122,400
Computer occupations, all other	31,800	Engineers, all other	107,300
Software developers	22,400	Computer systems analysts	98,600
Computer programmers	21,800	Computer programmers	79,600
Computer systems analysts	20,800	Psychologists	67,800
Computer and information systems managers	20,100	Civil engineers	59,600
Drafters	18,800	Electrical and electronics engineers	53,900
Surveying and mapping technicians	17,900	Physical scientists, all other	42,100
Miscellaneous life, physical, and social science technicians	17,100	Architectural and engineering managers	42,000
Some College or Associate's Degree		**Professional Degree**	
Computer support specialists	210,700	Psychologists	15,600
Engineering technicians	200,300	Medical and life scientists, all other	12,900
Computer occupations, all other	125,100	Software developers	7,600
Computer and information systems managers	116,500	Physical scientists, all other	6,000
Software developers	114,700	Engineers, all other	5,700
Computer systems analysts	98,700	Computer and information systems managers	4,900
Computer programmers	94,300	Computer programmers	4,200
Drafters	89,400	Computer systems analysts	4,000
Network and computer systems administrators	87,200	Civil engineers	2,900
Engineers, all other	55,800	Actuaries	2,700
Bachelor's Degree		**Doctorate Degree**	
Software developers	430,000	Physical scientists, all other	85,100
Computer and information systems managers	233,800	Psychologists	67,600
Computer programmers	208,500	Medical and life scientists, all other	63,700
Computer systems analysts	204,000	Software developers	23,900
Engineers, all other	193,800	Engineers, all other	21,800
Computer support specialists	162,600	Biological scientists	14,400
Civil engineers	151,700	Chemists and materials scientists	14,100
Computer occupations, all other	124,800	Electrical and electronics engineers	9,100
Electrical and electronics engineers	99,200	Economists	7,300
Mechanical engineers	97,900	Computer programmers	6,900

Note: Because of sampling error, the estimates may not be significantly different from one another or other occupations not in the top ten list.
Source: U.S. Census Bureau, 2011 American Community Survey.

Computer and engineering occupations predominated among those with a bachelor's or master's degree. The largest occupation for STEM workers with a bachelor's degree or a master's degree was software developer. Scientists held a larger share of STEM employment among professional and doctorate degree holders (Table 7). The leading STEM occupations among those with a professional degree were psychologist and medical and life scientist. The largest occupations for doctorate degree holders include physical scientist, psychologist, and medical and life scientist.[14]

Most science and engineering graduates are not employed in a STEM occupation. Although science and engineering majors make up 73 percent of the college-graduate STEM workforce, only 26 percent of science and engineering majors are currently employed in a STEM occupation (Figure 6). Instead, they are employed in fields such as management, health care, law, education, social work, accounting, or counseling (Table 9).[15]

A small percentage of college graduate STEM workers were not science and engineering college majors. About 6 percent of those with a science- and engineering-related major are employed in STEM, and 5 percent of those with nonscience and engineering majors are employed in STEM.[16]

Table 8.
Field of Bachelor's Degree for the First Listed Major: 2011
(Civilian employed aged 25 to 64 with a bachelor's degree)

Field of degree	Total degree holders		
	Number	MOE[1]	Percent
Total	**40,587,227**	**141,320**	**100**
Science and engineering	**14,449,945**	**74,072**	**35.6**
Computers, mathematics, and statistics	1,879,764	22,969	4.6
Biological, agricultural, and environmental sciences	2,673,123	30,593	6.6
Physical and related sciences	1,341,576	23,052	3.3
Psychology	1,929,435	22,014	4.8
Social science	3,143,968	32,562	7.7
Engineering	3,230,323	31,527	8.0
Multidisciplinary studies	251,756	9,184	0.6
Science- and engineering-related field	**3,817,781**	**37,670**	**9.4**
Business	**8,837,345**	**58,973**	**21.8**
Education	**4,488,430**	**38,694**	**11.1**
Arts, humanities, and other	**8,993,726**	**58,506**	**22.2**
Literature and languages	1,598,174	22,820	3.9
Liberal arts and history	1,896,923	23,878	4.7
Visual and performing arts	1,622,425	27,330	4.0
Communications	1,649,355	23,061	4.1
Other	2,226,849	24,602	5.5

[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.

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

STEM Employment by Detailed Field of Degree

Engineering majors and computers, mathematics, and statistics majors are the most likely to be employed

Table 9.
Largest Occupations Among Science and Engineering Graduates Aged 25 to 64 Who Are Not Employed in STEM: 2011

Occupations	Number of workers
Managers, all other	692,000
Physicians	594,200
Postsecondary teachers	522,100
Lawyers	442,900
Elementary and middle school teachers	425,100
Chief executives	220,400
Social workers	218,700
Management analysts	214,300
Counselors	204,100
Accountants and auditors	194,000

Note: Because of sampling error, the estimates may not be significantly different from one another or other occupations not in the list.

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

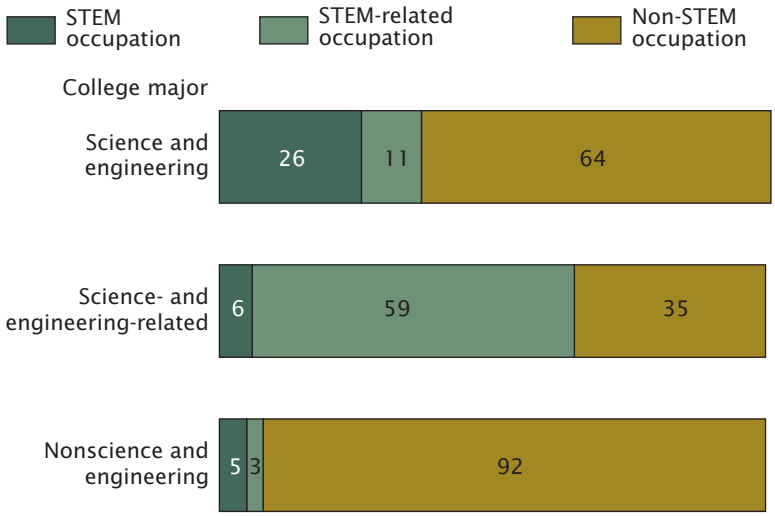
[14] The estimates for psychologist and medical and life scientist are not statistically different.

[15] Management in STEM fields, such as computer and information systems, natural sciences, and engineering is considered STEM employment. The Census Bureau occupational classification allows for more detail in the classification of managers (e.g., computer and information systems manager), but does not capture specific field of teaching (e.g., high school math teacher). For the full list of available occupations, see <www.census.gov/people/io/methodology/>.

[16] Some of these individuals may have graduate-level science and engineering training, but data on graduate degree majors are not available from the American Community Survey.

in a STEM occupation (Figure 7). Nearly half of engineering majors and computers, mathematics, and statistics majors are currently employed in a STEM occupation, and engineers make up nearly one-third of the STEM college-graduate workforce (Table 10). Science graduates are less likely to be employed in STEM, ranging from 7 percent (social science) to 27 percent (physical and related sciences) of science-degree holders, depending on the specific scientific field. One reason is that science graduates may be employed in STEM-related occupations, such as health care, and non-STEM teaching occupations.[17] For instance, a biology major may attend medical school and subsequently obtain employment as a physician (STEM-related occupation). A second reason is that science employment is more likely to require graduate education. About 80 percent of social scientists, 50 percent of physical scientists, and 46 percent of life scientists have a graduate degree. About 37 percent of mathematical workers, 23 percent of engineers, and 22 percent of computer workers have a graduate degree.

Figure 6.
STEM Employment Among College Graduates Aged 25 to 64: 2011
(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.

Geographical Distribution of STEM Workers

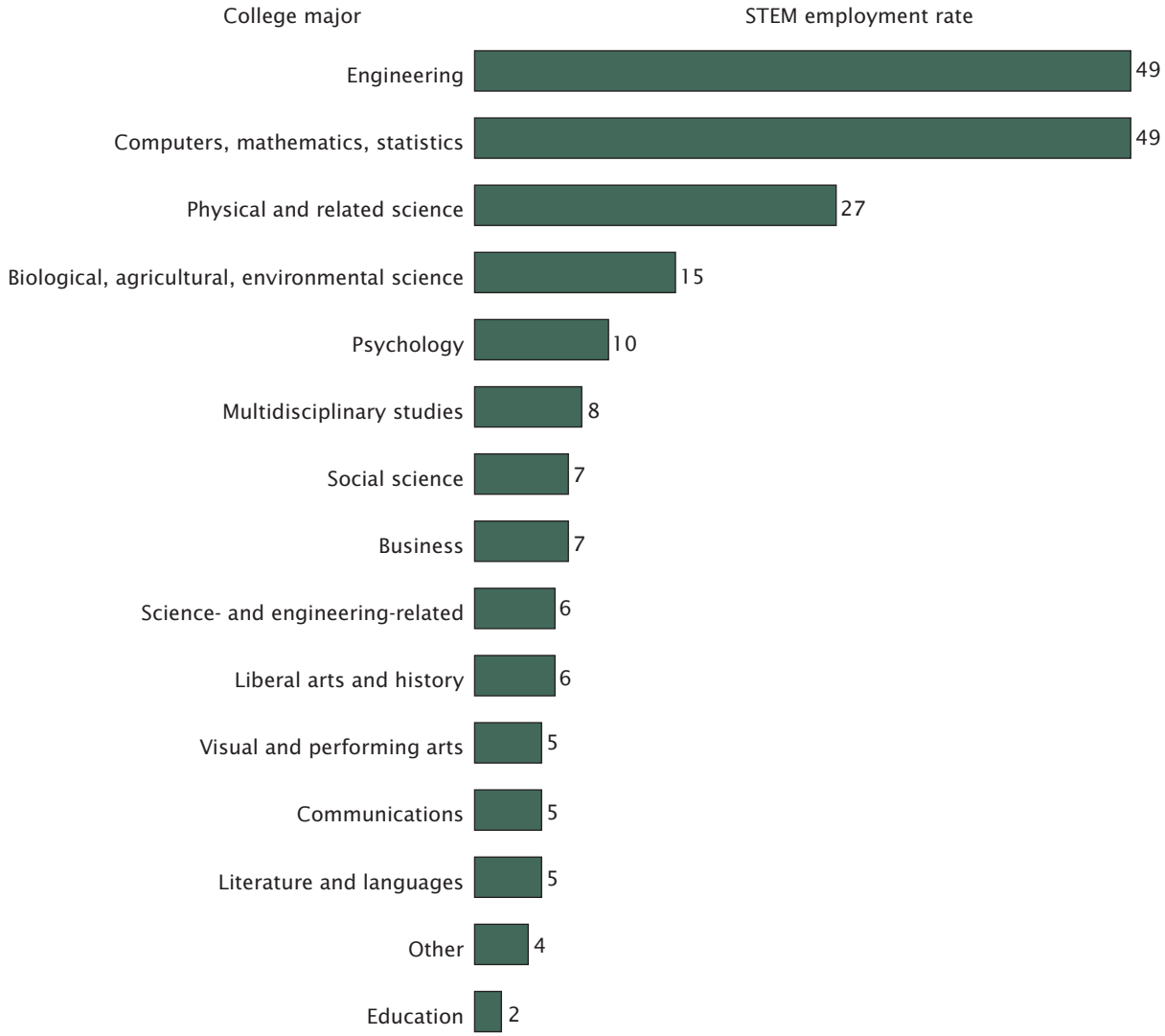
There is considerable diversity in the geographical location of STEM workers. STEM workers tend to be located in large cities dominated by professional and scientific industries, manufacturing, or government (Figure 8). The largest concentration of STEM workers is in California. Three of the top ten metro areas ranked by percentage employed in STEM occupations are in California—two in or near the well-known, high-tech corridor of the Silicon Valley (Table 11). About 20 percent of workers in San Jose-Sunnyvale-Santa Clara, CA, are in a STEM occupation, the highest percentage of any metro area.

[17] For the purposes of these analyses, teachers are not classified as STEM workers even if they teach in a STEM field. Census Bureau occupation data are not differentiated by field of teaching, so an English teacher cannot be distinguished from a physics teacher. The SOCPC recommends classifying teachers as STEM when detailed field of teaching is available.

Figure 7.

Percentage of Workers Aged 25 to 64 Currently Employed in a STEM Occupation by Detailed Field of Degree: 2011

(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.

Table 10.

Field of Degree by Employment in STEM Occupations: 2011

(Civilian employed aged 25 to 64 with a bachelor's degree)

Field of Degree	Bachelor's degree holders[1]		Field of employment			STEM college-educated workforce	
	Percent	MOE[2]	Occupation	Percent	MOE[2]	Percent	MOE[2]
Total	**100.0**	**0.1**	**STEM**	**12.4**	**0.1**	**100.0**	**0.1**
			STEM-related	**11.3**	**0.1**		
			Non-STEM	**76.3**	**0.1**		
Science and engineering	35.6	0.1	STEM	25.6	0.2	73.3	0.3
			STEM-related	10.8	0.2		
			Non-STEM	63.6	0.2		
Computers, mathematics, and statistics	4.6	0.1	STEM	49.0	0.6	18.2	0.2
			STEM-related	2.2	0.2		
			Non-STEM	48.8	0.6		
Biological, agricultural, and environmental sciences	6.6	0.1	STEM	14.9	0.4	7.9	0.2
			STEM-related	31.2	0.6		
			Non-STEM	53.9	0.6		
Physical and related science	3.3	0.1	STEM	27.2	0.6	7.2	0.2
			STEM-related	17.7	0.6		
			Non-STEM	55.1	0.7		
Psychology	4.8	0.1	STEM	9.7	0.3	3.7	0.1
			STEM-related	11.2	0.4		
			Non-STEM	79.1	0.5		
Social sciences	7.7	0.1	STEM	7.2	0.2	4.5	0.1
			STEM-related	3.9	0.2		
			Non-STEM	88.9	0.3		
Engineering	8.0	0.1	STEM	48.9	0.5	31.3	0.3
			STEM-related	2.2	0.1		
			Non-STEM	48.9	0.5		
Multidisciplinary studies	0.6	0.1	STEM	8.2	1.0	0.4	0.1
			STEM-related	17.2	1.3		
			Non-STEM	74.7	1.5		
Science- and engineering-related fields	9.4	0.1	STEM	6.1	0.2	4.6	0.2
			STEM-related	59.2	0.5		
			Non-STEM	34.7	0.5		
Business	21.8	0.1	STEM	6.6	0.1	11.6	0.2
			STEM-related	2.4	0.1		
			Non-STEM	91.0	0.2		
Education	11.1	0.1	STEM	1.9	0.1	1.7	0.1
			STEM-related	2.8	0.1		
			Non-STEM	95.3	0.2		
Arts, humanities, and other	22.2	0.1	STEM	5.0	0.1	8.9	0.2
			STEM-related	4.6	0.1		
			Non-STEM	90.4	0.2		
Literature and languages	3.9	0.1	STEM	5.4	0.3	1.7	0.1
			STEM-related	4.6	0.3		
			Non-STEM	90.0	0.4		
Liberal arts and history	4.7	0.1	STEM	5.6	0.3	2.1	0.1
			STEM-related	4.8	0.3		
			Non-STEM	89.6	0.4		
Visual and performing arts	4.0	0.1	STEM	5.2	0.3	1.7	0.1
			STEM-related	3.2	0.2		
			Non-STEM	91.7	0.4		
Communications	4.1	0.1	STEM	5.1	0.3	1.7	0.1
			STEM-related	3.0	0.2		
			Non-STEM	91.9	0.4		
Other	5.5	0.1	STEM	3.9	0.2	1.7	0.1
			STEM-related	6.7	0.3		
			Non-STEM	89.4	0.3		

[1] Bachelor's degree or higher level of educational attainment. Field of degree is for the first listed major.

[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.

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

Washington-Arlington-Alexandria, DC-VA-MD-WV, also has a large STEM workforce at 13 percent of the total area workforce or about 330,000 workers.[18] Compared with other states, Washington, DC, has the largest percentage of college graduates in the United States—nearly half have at least a bachelor's degree.[19] It has a large professional and federal government sector, both of which are overrepresented as STEM employers. New York-Northern New Jersey-Long Island, NY-NJ-PA, employs the largest number of STEM workers: nearly half a million (Table 12). Table 13 lists employment in STEM occupations for the 50 largest metro areas in the United States.

Educational attainment explains some of the geographical variation in STEM employment. STEM workers with at least a bachelor's degree predominated in the West and in several large metro areas, including New York-Northern New Jersey-Long Island, NY-NJ-PA; Boston-Cambridge-Quincy, MA-NH; and Washington-Arlington-Alexandria, DC-VA-MD-WV (Figure 9). STEM workers with less than a bachelor's degree predominated in the South.

[18] The estimates (percentage of STEM workers) for Washington-Arlington-Alexandria, DC-VA-MD-WV, and Raleigh-Cary, NC, are not statistically different.

[19] Camille L. Ryan and Julie Siebens, 2012, "Educational Attainment in the United States: 2009," *Current Population Reports*, P20-566, <www.census.gov/prod/2012pubs/p20-566.pdf>.

Table 11.

Top Ten U.S. Metropolitan Statistical Areas Ranked by Percentage Employed in STEM Occupations: 2011

(Civilian employed aged 25 to 64)

Rank	Metropolitan statistical area[1]	STEM workers	
		Percent	MOE[2]
1	San Jose-Sunnyvale-Santa Clara, CA[3]	19.7	0.7
2	Washington-Arlington-Alexandria, DC-VA-MD-WV	13.1	0.4
3	Raleigh-Cary, NC	12.2	1.2
4	Seattle-Tacoma-Bellevue, WA	11.4	0.4
5	San Francisco-Oakland-Fremont, CA	10.7	0.5
6 (tie)	Baltimore-Towson, MD	10.0	0.5
6 (tie)	Boston-Cambridge-Quincy, MA-NH	10.0	0.3
8	Austin-Round Rock-San Marcos, TX	9.8	0.7
9	San Diego-Carlsbad-San Marcos, CA	9.5	0.4
10 (tie)	Minneapolis-St. Paul-Bloomington, MN-WI	9.1	0.4
10 (tie)	Denver-Aurora-Broomfield, CO	9.1	0.4

[1] Metropolitan statistical area populations based on the 2010 Census. Metropolitan statistical areas defined by the Office of Management and Budget as of December 2009.

[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 is in relation to the size of the estimate, the less reliable the estimate. When added to and subtracted from the estimate, the margin of error forms the 90 percent confidence interval.

[3] Statistically different from the other metropolitan statistical areas at the 90 percent confidence level.

Note: Because of sampling error, the estimates in this table may not be significantly different from one another.

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

Table 12.

Top Ten U.S. Metropolitan Statistical Areas Ranked by Number Employed in STEM Occupations: 2011

(Civilian employed aged 25 to 64)

Rank	Metropolitan statistical area[1]	STEM workers	
		Number	MOE[2]
1	New York-Northern New Jersey-Long Island, NY-NJ-PA[3]	439,451	11,561
2	Washington-Arlington-Alexandria, DC-VA-MD-WV[3]	334,446	8,873
3	Los Angeles-Long Beach-Santa Ana, CA[3]	282,253	9,097
4	Chicago-Joliet-Naperville, IL-IN-WI[3]	230,343	8,651
5	San Francisco-Oakland-Fremont, CA	197,646	8,606
6	Dallas-Fort Worth-Arlington, TX	197,037	8,021
7	Boston-Cambridge-Quincy, MA-NH	193,225	6,110
8	Houston-Sugar Land-Baytown, TX	185,586	9,804
9	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	170,248	6,669
10	Seattle-Tacoma-Bellevue, WA	165,448	6,189

[1] Metropolitan statistical area populations based on the 2010 Census. Metropolitan statistical areas defined by the Office of Management and Budget as of December 2009.

[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 is in relation to the size of the estimate, the less reliable the estimate. When added to and subtracted from the estimate, the margin of error forms the 90 percent confidence interval.

[3] Statistically different from the other metropolitan statistical areas at the 90 percent confidence level.

Note: Because of sampling error, the estimates in this table may not be significantly different from one another.

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

Figure 8.
Percentage of Workers in STEM Occupations for All Metro Areas: 2011

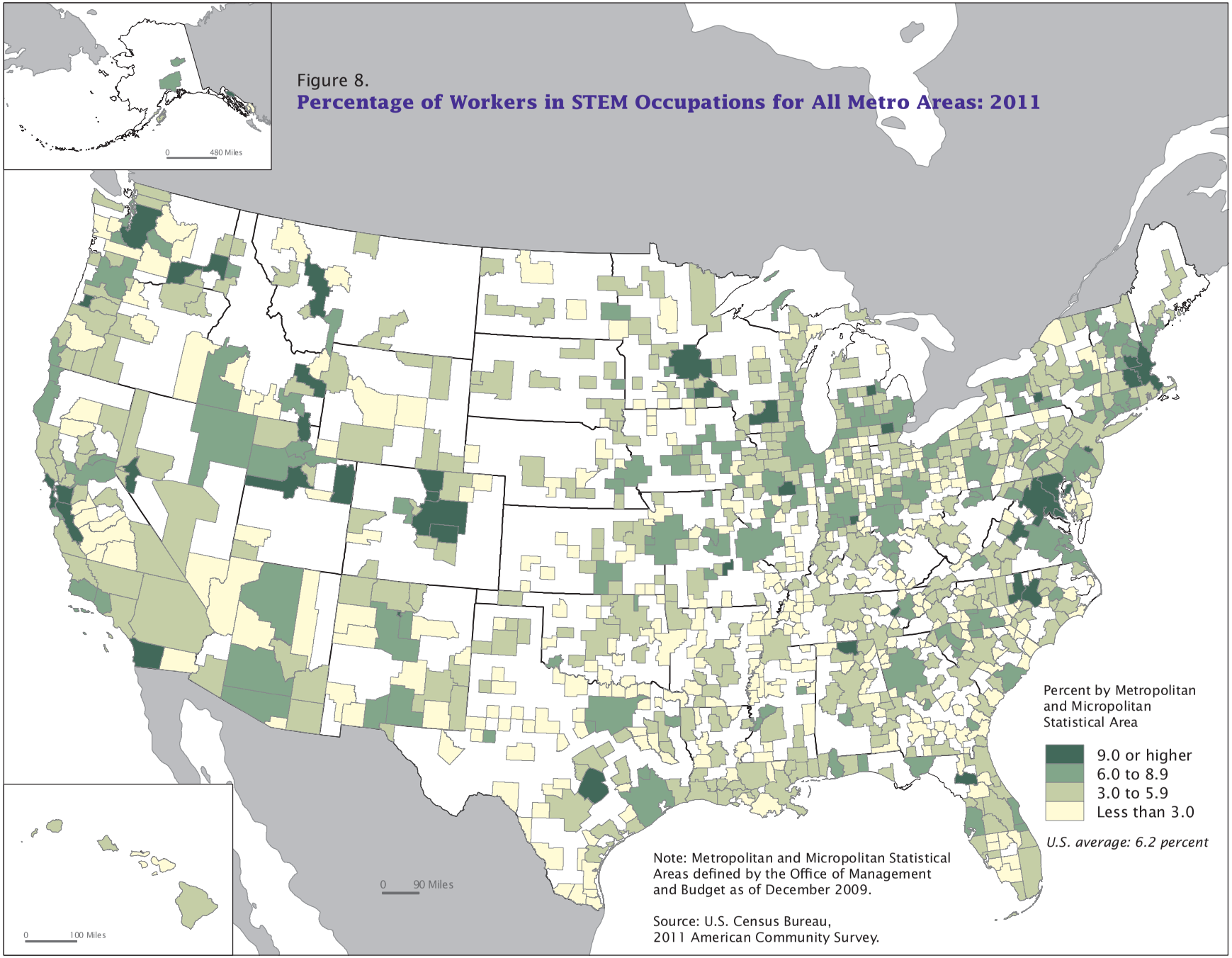


Table 13.

Employment in STEM Occupations for the 50 Largest Metropolitan Statistical Areas:[1] 2011

(Civilian employed aged 25 to 64)

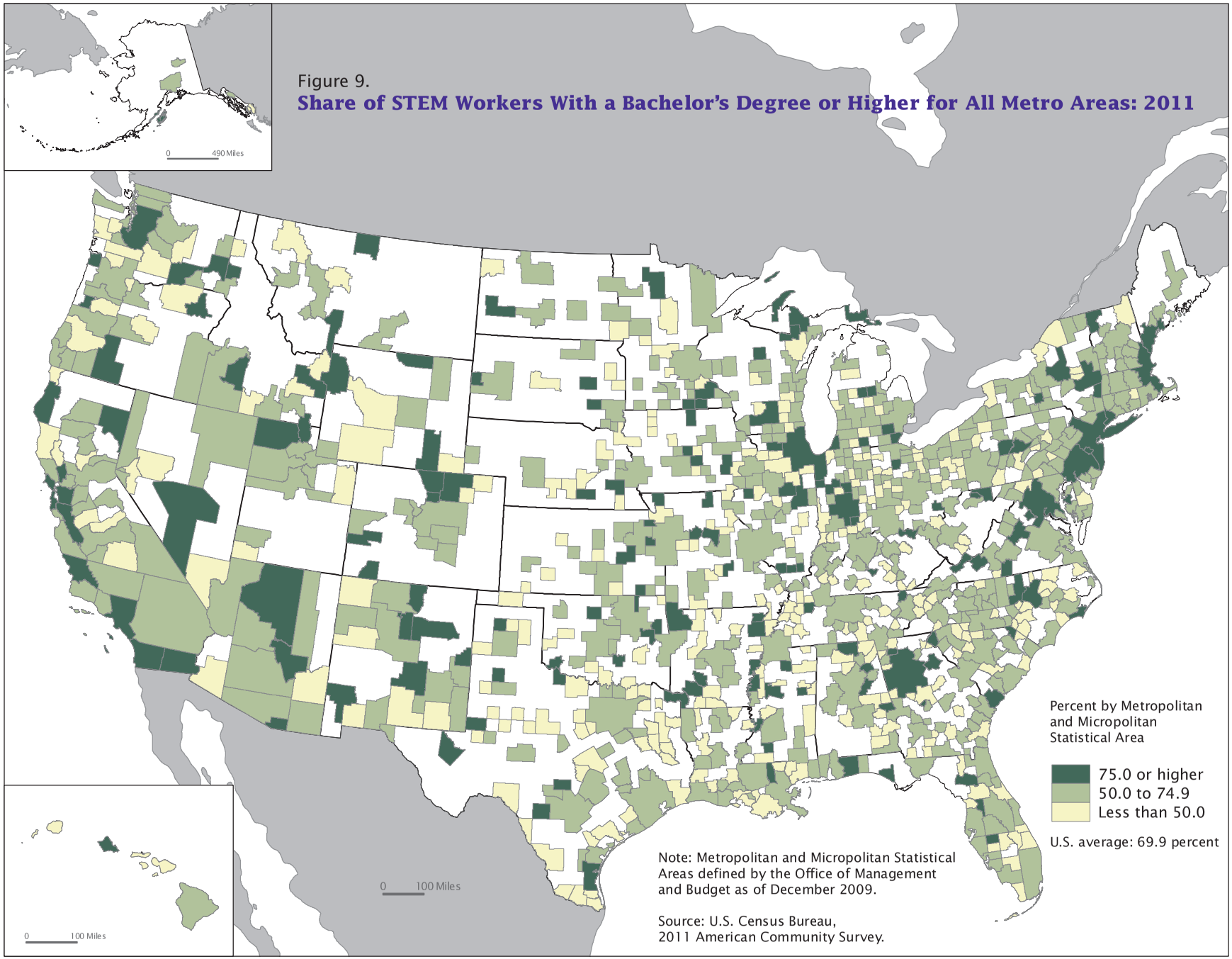
Area	Total workforce		STEM occupations		Percent employed in STEM occupations	
	Estimate	MOE[2]	Estimate	MOE[2]	Estimate	MOE[2]
United States	**116,445,308**	**106,429**	**7,227,620**	**48,618**	**6.2**	**0.1**
Atlanta-Sandy Springs-Marietta, GA	2,105,535	19,094	155,590	8,088	7.4	0.4
Austin-Round Rock, TX	750,025	8,426	73,350	5,228	9.8	0.7
Baltimore-Towson, MD	1,105,965	9,311	110,631	6,216	10.0	0.5
Birmingham-Hoover, AL	411,693	7,282	20,370	2,902	4.9	0.7
Boston-Cambridge-Quincy, MA-NH	1,940,151	11,211	193,225	6,110	10.0	0.3
Buffalo-Niagara Falls, NY	427,653	5,532	21,934	2,031	5.1	0.5
Charlotte-Gastonia-Concord, NC-SC	724,626	9,333	44,683	3,867	6.2	0.5
Chicago-Naperville-Joliet, IL-IN-WI	3,725,265	17,093	230,343	8,651	6.2	0.2
Cincinnati-Middletown, OH-KY-IN	827,844	8,283	59,057	3,860	7.1	0.5
Cleveland-Elyria-Mentor, OH	784,057	5,987	48,638	3,240	6.2	0.4
Columbus, OH	750,047	8,182	53,435	3,522	7.1	0.5
Dallas-Fort Worth-Arlington, TX	2,622,622	16,681	197,037	8,021	7.5	0.3
Denver-Aurora-Broomfield, CO	1,116,774	8,093	101,694	4,610	9.1	0.4
Detroit-Warren-Livonia, MI	1,528,931	10,548	120,890	4,331	7.9	0.3
Hartford-West Hartford-East Hartford, CT	491,645	5,310	36,999	3,084	7.5	0.6
Houston-Sugar Land-Baytown, TX	2,382,750	17,585	185,586	9,804	7.8	0.4
Indianapolis-Carmel, IN	708,619	8,442	46,655	3,974	6.6	0.6
Jacksonville, FL	509,072	8,505	28,251	4,158	5.5	0.8
Kansas City, MO-KS	840,113	7,003	61,999	4,210	7.4	0.5
Las Vegas-Paradise, NV	730,680	9,436	20,575	3,604	2.8	0.5
Los Angeles-Long Beach-Santa Ana, CA	4,944,231	18,307	282,253	9,097	5.7	0.2
Louisville/Jefferson County, KY-IN	497,943	6,715	23,653	2,423	4.8	0.5
Memphis, TN-MS-AR	492,213	7,099	22,043	2,829	4.5	0.6
Miami-Fort Lauderdale-Pompano Beach, FL	2,149,963	17,478	81,317	5,654	3.8	0.3
Milwaukee-Waukesha-West Allis, WI	618,873	6,228	41,588	3,204	6.7	0.5
Minneapolis-St. Paul-Bloomington, MN-WI	1,451,034	8,797	132,652	5,394	9.1	0.4
Nashville-Davidson—Murfreesboro—Franklin, TN	656,108	7,676	38,245	3,677	5.8	0.6
New Orleans-Metairie-Kenner, LA	452,484	5,542	19,269	2,132	4.3	0.5
New York-Northern New Jersey-Long Island, NY-NJ-PA	7,539,611	27,749	439,451	11,561	5.8	0.2
Oklahoma City, OK	488,819	5,563	27,088	2,519	5.5	0.5
Orlando-Kissimmee, FL	833,560	9,736	41,049	4,111	4.9	0.5
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	2,306,972	13,218	170,248	6,669	7.4	0.3
Phoenix-Mesa-Scottsdale, AZ	1,532,069	13,653	101,939	5,358	6.7	0.3
Pittsburgh, PA	924,697	8,216	59,645	2,977	6.5	0.3
Portland-Vancouver-Beaverton, OR-WA	916,031	9,857	75,704	4,502	8.3	0.5
Providence-New Bedford-Fall River, RI-MA	630,124	6,704	37,248	3,228	5.9	0.5
Raleigh-Cary, NC	488,116	8,895	59,477	5,833	12.2	1.2
Richmond, VA	500,235	6,300	35,289	2,558	7.1	0.5
Riverside-San Bernardino-Ontario, CA	1,378,337	14,973	50,818	4,911	3.7	0.4
Sacramento—Arden-Arcade—Roseville, CA	770,771	10,600	65,365	5,699	8.5	0.7
St. Louis, MO-IL	1,110,991	11,281	77,284	4,450	7.0	0.4
Salt Lake City, UT	448,143	5,532	32,646	2,985	7.3	0.7
San Antonio, TX	796,548	11,065	43,277	4,780	5.4	0.6
San Diego-Carlsbad-San Marcos, CA	1,146,094	11,869	108,451	5,161	9.5	0.4
San Francisco-Oakland-Fremont, CA	1,855,645	13,163	197,646	8,606	10.7	0.5
San Jose-Sunnyvale-Santa Clara, CA	763,949	7,931	150,148	5,631	19.7	0.7
Seattle-Tacoma-Bellevue, WA	1,455,841	10,875	165,448	6,189	11.4	0.4
Tampa-St. Petersburg-Clearwater, FL	1,013,096	13,637	62,031	4,404	6.1	0.4
Virginia Beach-Norfolk-Newport News, VA-NC	628,023	8,328	44,592	3,802	7.1	0.6
Washington-Arlington-Alexandria, DC-VA-MD-WV	2,545,368	14,353	334,446	8,873	13.1	0.4

[1] Metropolitan statistical area populations based on the 2010 Census. Metropolitan statistical areas defined by the Office of Management and Budget as of December 2009.

[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 is in relation to the size of the estimate, the less reliable the estimate. When added to and subtracted from the estimate, the margin of error forms the 90 percent confidence interval.

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

Figure 9.
Share of STEM Workers With a Bachelor's Degree or Higher for All Metro Areas: 2011



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. Beginning in 2006, ACS data for 2005 were released for geographic areas with populations of 65,000 and greater. 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>.

MORE INFORMATION

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