

TABLE 48

## U.S. residing employed doctoral scientists and engineers, by fine field of doctorate and broad occupation: 2019

(Number and SE)

Field of study	All employed		Science occupations						Engineering occupations						S&E-related occupations						Non-S&E occupations									
			Total		Post-secondary teachers		Other		Total		Post-secondary teachers		Other		Total		Health occupations		S&E managers		Other		Total		Non-S&E managers		Non-S&E teachers		Other	
	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE
All fields	857,200	1,975	492,750	2,500	168,450	1,800	324,300	2,375	120,650	1,375	23,950	750	96,700	1,300	92,350	1,475	54,400	1,050	24,650	850	13,300	600	151,500	1,650	55,650	1,175	21,850	675	74,000	1,500
Science	640,300	1,900	442,500	2,125	162,500	1,750	279,950	2,075	18,000	700	2,300	275	15,700	700	59,400	1,150	33,950	800	15,800	675	9,650	500	120,450	1,475	40,550	1,050	18,650	675	61,250	1,375
Biological, agricultural, and environmental life sciences	220,700	1,100	142,900	1,225	39,900	825	103,000	1,175	2,550	275	550	150	2,000	225	38,100	1,000	26,250	775	8,300	500	3,600	350	37,150	975	12,550	675	1,900	225	22,700	725
Agricultural and food sciences	17,400	350	12,600	325	3,100	250	9,500	300	300	75	D	D	250	75	1,150	150	350	75	650	125	200	75	3,350	250	1,200	175	150	75	2,000	200
Agricultural sciences	950	50	600	50	200	50	400	50	*	*	D	D	*	*	100	50	*	*	50	25	*	*	250	50	50	25	50	25	150	50
Animal sciences	4,550	175	3,200	175	950	125	2,250	150	S	S	D	D	S	S	300	75	150	50	100	50	50	25	1,000	125	350	100	*	*	600	100
Food sciences and technology	3,750	175	2,700	175	500	100	2,200	150	100	50	D	D	100	50	250	75	150	50	50	25	D	D	750	150	300	75	D	D	350	100
Plant sciences	5,900	250	4,450	225	1,000	150	3,450	200	D	D	D	D	D	D	350	100	S	S	250	75	S	S	1,100	150	350	100	D	D	700	125
Soil sciences	2,200	125	1,650	125	450	75	1,200	100	50	25	D	D	50	25	200	100	D	D	S	S	*	*	300	75	100	50	D	D	150	50
Biochemistry and biophysics	29,450	425	19,300	550	5,400	400	13,900	550	500	150	D	D	500	150	4,500	375	2,500	275	1,350	250	650	175	5,150	350	1,800	250	300	125	3,100	300
Biochemistry	24,350	400	15,900	525	4,650	375	11,250	500	400	125	D	D	400	125	3,800	350	2,050	250	1,150	250	550	150	4,300	325	1,550	250	250	125	2,500	275
Biophysics	5,100	175	3,400	175	750	100	2,650	175	150	75	D	D	100	50	700	125	450	100	150	75	100	50	850	125	250	75	D	D	600	125
Cell, cellular biology, and molecular biology	31,200	450	18,250	550	4,850	325	13,350	525	350	125	D	D	250	100	5,850	450	4,100	350	1,150	225	600	175	6,750	475	1,900	300	150	75	4,650	375
Microbiological sciences and immunology	23,800	400	15,250	450	3,700	250	11,550	450	S	S	D	D	D	D	4,750	350	3,650	300	950	175	200	75	3,700	325	1,200	200	200	100	2,300	250
Immunology	8,950	200	5,350	275	950	150	4,400	300	D	D	D	D	D	D	2,150	225	1,800	225	300	75	D	D	1,400	225	400	100	S	S	900	175
Microbiological sciences	14,900	325	9,900	350	2,750	225	7,150	350	S	S	D	D	D	D	2,650	250	1,850	225	600	150	150	75	2,250	225	800	150	50	25	1,400	175
Natural resources and conservation	8,800	225	5,900	200	1,800	150	4,100	175	450	75	100	50	350	75	600	100	150	50	400	100	100	50	1,850	200	700	150	100	50	1,050	150
Fish, fisheries, wildlife and wildlands science and management	2,200	150	1,650	125	400	75	1,250	100	D	D	D	D	D	D	150	50	D	D	100	50	D	D	350	100	200	100	D	D	150	50
Forestry	2,600	150	1,600	125	500	75	1,100	100	150	25	*	*	100	25	150	50	50	25	50	25	50	25	700	150	S	S	50	25	450	125
Natural resource conservation, research, management, and policy	4,000	150	2,650	150	900	125	1,750	125	300	75	S	S	250	75	300	100	50	25	200	75	50	25	750	100	300	75	50	25	400	75
Zoology	7,200	225	5,650	250	2,500	175	3,150	225	D	D	D	D	D	D	700	125	250	75	350	100	100	50	800	125	250	75	D	D	500	100
Other biological sciences	102,800	675	65,950	800	18,500	575	47,450	725	750	150	200	75	600	125	20,500	650	15,250	550	3,550	275	1,700	200	15,650	625	5,500	375	1,000	175	9,150	475
Biomathematics, bioinformatics, and computational biology	5,150	100	4,200	125	850	100	3,350	125	50	25	D	D	50	25	500	75	200	75	150	50	150	50	450	75	250	75	50	25	100	50
Botany and plant biology	6,150	225	4,750	200	1,800	200	2,950	175	D	D	D	D	D	D	300	75	100	50	150	50	50	50	1,100	150	400	100	100	50	600	100
Epidemiology, ecology, and population biology	15,950	275	11,850	350	4,400	325	7,450	350	150	75	D	D	S	S	2,400	250	1,450	200	600	125	300	100	1,600	200	800	150	150	75	650	125
Genetics	8,750	250	5,850	250	1,700	200	4,200	275	D	D	D	D	D	D	1,550	175	1,000	175	400	100	150	75	1,300	150	500	125	100	50	700	100
Neurobiology and neuroscience	16,800	275	10,400	400	2,250	225	8,150	350	200	75	D	D	150	75	3,850	325	3,150	300	350	100	350	100	2,350	250	650	125	S	S	1,650	225
Nutrition sciences	4,150	125	1,800	125	400	75	1,400	125	D	D	D	D	D	D	1,600	125	1,400	125	100	50	50	25	750	100	250	75	50	50	450	75
Pharmacology and toxicology	12,700	300	7,650	375	1,200	175	6,450	375	S	S	D	D	S	S	3,050	300	2,300	275	550	125	250	100	2,000	225	700	150	50	50	1,200	175

TABLE 48

## U.S. residing employed doctoral scientists and engineers, by fine field of doctorate and broad occupation: 2019

(Number and SE)

Field of study	All employed		Science occupations						Engineering occupations						S&E-related occupations						Non-S&E occupations									
			Total		Post-secondary teachers		Other		Total		Post-secondary teachers		Other		Total		Health occupations		S&E managers		Other		Total		Non-S&E managers		Non-S&E teachers		Other	
	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE
Physiology, pathology, and related sciences	15,400	300	8,400	325	2,300	225	6,100	300	D	D	D	D	D	D	4,050	300	3,350	250	600	125	100	50	2,900	250	1,100	200	150	75	1,650	200
Biological and biomedical sciences, general	12,750	300	8,000	300	2,550	225	5,450	275	150	75	D	D	100	50	2,350	250	1,650	225	450	100	200	75	2,250	250	500	125	150	75	1,650	225
Biological and biomedical sciences, other	4,950	200	3,000	200	1,100	150	1,900	175	100	50	*	*	100	50	900	150	600	125	200	75	100	50	950	125	400	100	100	50	450	100
Computer and information sciences	31,100	400	24,400	500	6,700	400	17,700	500	1,100	200	250	100	850	175	1,750	225	150	50	1,150	175	500	125	3,850	275	1,600	200	750	100	1,500	200
Computer science	26,750	400	21,700	475	5,800	400	15,850	500	950	200	250	100	750	175	1,450	225	D	D	1,000	175	450	125	2,600	250	1,350	200	200	75	1,100	200
Information science, studies	2,600	75	1,350	100	500	75	850	100	100	50	S	S	100	50	200	50	100	25	100	50	50	25	950	100	200	50	450	75	300	50
Computer and information sciences, other	1,800	50	1,400	75	400	50	1,000	50	50	25	D	D	50	25	100	25	50	25	50	25	*	*	250	50	50	25	100	25	100	25
Mathematics and statistics	36,650	450	29,950	525	17,550	525	12,400	475	800	150	50	25	750	150	1,600	175	300	75	350	100	950	150	4,300	350	1,500	175	1,050	125	1,800	250
Applied mathematics	8,500	200	6,900	225	3,750	225	3,100	225	450	125	D	D	400	125	400	100	D	D	150	75	200	75	750	150	200	50	S	S	450	125
Mathematics	16,500	375	13,900	375	9,600	375	4,300	325	250	100	D	D	250	100	850	125	50	50	150	75	600	125	1,500	225	500	125	150	75	900	175
Statistics	7,450	225	6,450	250	2,700	250	3,750	250	D	D	D	D	D	D	150	75	100	75	D	D	50	25	850	125	550	100	D	D	250	75
Mathematics and statistics, other	4,200	125	2,700	125	1,450	125	1,250	125	50	50	50	25	S	S	200	50	50	25	50	25	100	50	1,200	125	250	75	800	100	200	50
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	133,750	950	92,150	1,100	31,450	800	60,700	1,025	12,750	600	1,350	200	11,400	625	9,600	550	2,000	275	3,900	350	3,700	350	19,250	675	7,300	450	450	100	11,500	500
Astronomy and astrophysics	5,850	175	4,400	200	2,100	175	2,300	175	350	75	D	D	350	75	500	125	150	75	150	75	200	50	600	100	250	50	D	D	350	75
Chemistry, except biochemistry	65,300	700	44,600	775	14,900	600	29,700	750	4,100	325	300	100	3,800	325	5,400	450	1,250	225	2,400	275	1,750	275	11,250	475	3,900	325	200	75	7,150	400
Inorganic chemistry	8,750	225	5,800	250	2,700	225	3,050	225	600	125	D	D	600	125	850	175	250	100	300	100	300	100	1,500	175	550	125	D	D	900	150
Organic chemistry	17,600	375	13,000	425	4,450	325	8,550	400	300	100	D	D	250	100	1,100	200	150	75	700	150	200	75	3,150	275	1,050	175	D	D	2,100	225
Chemistry, other, except biochemistry	39,000	575	25,800	600	7,750	400	18,050	600	3,150	275	250	100	2,950	250	3,450	325	850	175	1,400	200	1,250	200	6,550	375	2,250	225	150	75	4,100	325
Geosciences, atmospheric sciences, and ocean sciences	22,050	300	17,700	325	5,350	225	12,300	325	900	100	150	50	700	100	850	100	100	50	450	50	350	75	2,650	150	1,050	100	150	50	1,450	125
Atmospheric sciences and meteorology	3,900	75	3,250	100	600	75	2,650	100	150	50	D	D	150	50	200	50	D	D	100	25	100	25	300	50	100	50	*	*	150	50
Geological and earth sciences, geosciences	13,550	275	10,900	275	3,700	225	7,200	275	650	100	150	50	500	75	400	75	50	25	150	50	200	50	1,700	150	700	100	50	25	950	125
Ocean sciences and marine sciences	2,150	75	1,650	75	500	50	1,150	75	50	25	*	*	50	25	150	50	D	D	100	25	50	25	300	50	100	50	50	25	150	25
Oceanography, chemical and physical	2,450	125	1,900	100	600	100	1,300	125	50	25	D	D	50	25	150	50	D	D	100	25	50	25	350	75	150	50	D	D	150	50
Physics	40,550	575	25,500	675	9,100	550	16,400	625	7,450	500	900	175	6,500	500	2,850	300	550	125	950	175	1,350	225	4,800	375	2,100	250	S	S	2,600	275
Psychology	115,350	825	85,200	925	22,050	675	63,150	1,075	450	150	D	D	450	150	5,100	375	3,250	275	1,650	200	250	75	24,550	700	8,200	475	4,450	300	11,900	575
Clinical psychology	41,100	525	35,950	625	5,150	425	30,800	700	D	D	D	D	D	D	1,250	225	600	150	650	150	D	D	3,950	375	1,600	250	200	75	2,150	300
Counseling and applied psychology	14,850	275	10,900	350	2,150	200	8,750	375	D	D	D	D	D	D	550	125	350	100	200	100	D	D	3,350	300	1,100	200	350	100	1,950	225
Educational and school psychology	14,100	275	8,000	350	1,750	175	6,250	350	D	D	D	D	D	D	950	175	550	150	250	100	100	75	5,100	325	1,200	175	1,950	225	1,950	200
Industrial and organizational psychology	4,850	150	2,100	150	700	125	1,400	125	D	D	D	D	D	D	50	25	D	D	D	D	D	D	2,650	150	750	125	450	100	1,450	125
Research and experimental psychology	27,800	400	19,700	450	9,500	350	10,150	400	100	50	D	D	100	50	1,700	200	1,250	175	350	75	150	50	6,300	350	2,400	225	950	125	2,950	250

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(Number and SE)

Field of study	All employed		Science occupations						Engineering occupations						S&E-related occupations						Non-S&E occupations									
			Total		Post-secondary teachers		Other		Total		Post-secondary teachers		Other		Total		Health occupations		S&E managers		Other		Total		Non-S&E managers		Non-S&E teachers		Other	
	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE
Psychology, general	7,900	250	5,750	275	1,650	225	4,050	250	D	D	D	D	D	D	300	100	250	100	S	S	D	D	1,650	200	600	150	350	125	700	125
Psychology, other	4,750	175	2,800	200	1,100	150	1,700	150	S	S	D	D	S	S	350	75	200	75	100	50	D	D	1,550	175	550	100	250	100	750	125
Social sciences	102,700	900	67,850	900	44,900	825	23,000	800	300	75	100	50	250	75	3,150	275	2,050	225	450	100	700	150	31,350	775	9,450	450	10,000	475	11,900	550
Economics	26,900	550	20,350	575	10,650	475	9,650	525	D	D	D	D	D	D	350	125	200	100	50	50	S	S	6,200	375	2,250	225	1,550	275	2,350	250
Political science and government	22,450	425	15,000	500	11,450	450	3,600	325	100	50	D	D	100	50	550	125	300	50	S	S	150	100	6,750	425	2,400	275	1,300	225	3,050	350
Political science and government	18,350	400	13,000	475	10,550	425	2,450	275	D	D	D	D	D	D	250	100	D	D	D	D	150	75	5,050	425	1,800	225	900	200	2,400	350
Public policy analysis	4,100	175	2,000	150	850	100	1,150	125	S	S	D	D	D	D	350	75	250	50	S	S	D	D	1,700	150	650	100	400	125	650	100
Sociology, demography, and population studies	15,200	325	11,200	375	8,400	325	2,800	250	D	D	D	D	D	D	450	125	350	125	S	S	D	D	3,550	275	1,350	175	700	150	1,450	200
Other social sciences	38,150	500	21,300	450	14,350	425	6,950	275	200	75	50	50	150	50	1,800	175	1,200	150	200	75	400	100	14,900	450	3,400	250	6,450	300	5,050	325
Anthropology	11,400	300	8,050	325	5,550	300	2,500	225	D	D	D	D	D	D	550	100	400	100	D	D	D	D	2,750	225	1,000	175	550	100	1,200	175
Area, ethnic, cultural, gender, and group studies	3,900	125	800	100	600	100	200	50	D	D	D	D	D	D	100	50	50	50	D	D	D	D	2,950	150	400	75	1,750	125	850	100
Geography and cartography	4,750	175	3,650	175	2,450	150	1,200	125	50	25	D	D	D	D	200	75	100	50	D	D	100	50	850	100	250	75	200	75	350	75
International relations and national security studies	2,350	150	1,500	125	1,200	100	300	50	D	D	D	D	D	D	D	D	D	D	D	D	D	D	850	100	350	75	150	50	350	75
Linguistics	4,950	250	1,750	175	1,250	150	500	100	D	D	D	D	D	D	250	100	150	75	D	D	D	D	2,900	225	300	75	1,950	200	700	125
Urban studies, affairs	1,600	100	800	75	450	50	350	50	D	D	D	D	D	D	100	50	50	25	D	D	D	D	650	75	200	50	200	50	300	50
Social sciences, other	9,250	250	4,750	225	2,850	200	1,900	150	D	D	D	D	D	D	550	100	450	100	50	25	100	25	3,900	225	850	125	1,700	150	1,350	125
Engineering	176,700	1,175	38,300	1,100	4,100	400	34,200	1,025	102,150	1,100	21,550	700	80,600	1,050	12,750	550	1,600	200	7,650	475	3,500	350	23,500	775	11,850	500	1,550	200	10,100	600
Aerospace, aeronautical, and astronautical engineering	7,050	225	850	125	50	25	800	125	5,000	250	950	150	4,050	250	500	125	D	D	450	125	50	50	700	150	300	75	D	D	400	125
Chemical engineering	20,800	500	4,000	350	200	100	3,800	350	11,600	550	1,750	250	9,850	500	1,650	250	D	D	1,200	200	350	125	3,500	350	1,750	250	D	D	1,600	250
Civil engineering	19,250	400	2,250	275	500	150	1,800	225	13,450	450	4,200	300	9,250	450	1,400	250	D	D	1,250	250	150	75	2,150	250	1,300	200	100	50	750	150
Electrical and computer engineering	48,550	650	13,500	575	1,550	200	11,950	575	26,400	600	4,400	375	22,000	575	3,050	250	150	75	1,450	200	1,450	200	5,600	350	3,250	300	150	75	2,150	325
Computer engineering	7,000	175	4,400	225	700	125	3,750	225	1,700	175	600	125	1,100	150	350	75	D	D	200	50	150	50	550	100	400	100	D	D	150	50
Electrical, electronics, and communications engineering	41,550	625	9,100	525	900	200	8,200	550	24,750	575	3,800	350	20,900	550	2,700	250	150	75	1,250	200	1,300	200	5,000	350	2,850	275	150	75	2,000	325
Mechanical engineering	26,550	425	4,050	400	450	175	3,550	375	18,700	525	4,350	375	14,350	525	1,250	200	S	S	650	150	500	150	2,550	300	1,150	200	D	D	1,300	225
Industrial engineers	16,450	350	2,950	275	200	100	2,800	275	9,800	425	1,150	175	8,650	400	1,350	200	D	D	950	175	350	125	2,350	275	1,000	175	D	D	1,300	225
Other engineering	38,050	450	10,700	400	1,200	150	9,500	400	17,200	500	4,700	325	12,500	450	3,500	250	1,200	175	1,650	175	650	100	6,650	350	3,100	250	1,050	150	2,500	225
Agricultural engineering	1,900	75	450	75	100	25	350	75	1,150	100	450	75	750	75	100	50	D	D	50	50	*	*	200	50	100	50	D	D	100	25
Bioengineering and biomedical engineering	13,200	250	4,150	275	250	75	3,900	275	5,300	325	1,400	200	3,900	325	1,550	175	900	150	500	100	150	75	2,200	225	1,100	150	D	D	1,050	175
Engineering mechanics, physics, and science	4,400	150	900	125	150	75	750	100	2,550	150	650	100	1,900	150	400	75	S	S	150	50	150	50	550	100	300	75	D	D	200	50
Industrial and manufacturing engineering	8,800	275	2,950	200	300	100	2,650	200	3,050	225	1,350	200	1,750	175	600	125	50	50	350	100	200	50	2,150	200	800	125	750	125	650	125
Nuclear engineering	3,100	125	700	75	100	50	650	75	1,600	125	250	75	1,350	125	350	75	100	50	150	50	50	25	450	100	300	75	D	D	150	50

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			Total		Post-secondary teachers		Other		Total		Post-secondary teachers		Other		Total		Health occupations		S&E managers		Other		Total		Non-S&E managers		Non-S&E teachers		Other	
	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE
Engineering, other	6,600	200	1,550	150	300	75	1,250	150	3,500	225	700	125	2,850	225	500	100	D	D	400	100	S	S	1,050	150	450	100	200	100	400	100
Health	40,200	475	11,950	350	1,800	175	10,150	350	450	125	50	50	400	125	20,200	550	18,850	550	1,200	175	150	75	7,600	350	3,250	275	1,650	175	2,700	250
Communication disorders sciences and services	3,100	125	350	75	100	50	250	50	D	D	D	D	D	D	2,100	125	2,050	125	50	25	D	D	650	100	200	75	150	50	250	75
Hospital and medical administration services	1,550	100	400	75	50	25	350	50	D	D	D	D	D	D	700	75	600	75	100	50	D	D	450	75	200	50	100	50	150	50
Pharmacy, pharmaceutical sciences, and administration	8,050	175	5,000	250	600	100	4,400	250	S	S	D	D	S	S	1,700	200	1,400	200	250	75	D	D	1,150	150	650	150	50	50	450	100
Public health	8,400	225	3,000	225	300	75	2,650	225	100	50	D	D	100	50	3,700	275	3,350	275	350	100	D	D	1,600	175	600	100	200	75	800	150
Registered nursing, nursing administration, nursing research	9,000	250	400	100	100	50	250	100	D	D	D	D	D	D	6,950	300	6,650	300	300	125	D	D	1,650	200	950	150	400	125	300	100
Health sciences, other	10,150	225	2,850	200	650	100	2,200	175	150	50	D	D	100	50	5,050	250	4,800	250	200	75	50	25	2,100	175	600	125	750	125	750	150

\* = suppressed when population estimate < 25. D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

S&E = science and engineering; SE = standard error.

**Note(s):**

Numbers are rounded to the nearest 50. Standard errors are rounded up to the nearest 25. Detail may not add to total because of rounding. Residence location is based on reported living location on 1 February 2019.

**Source(s):**

National Center for Science and Engineering Statistics, Survey of Doctorate Recipients: 2019.