

TABLE 15-1

## U.S. residing employed doctoral scientists and engineers, by fine field of doctorate and primary or secondary work activity: 2019

(Number and SE)

Field of study	Research and development																						Computer applications	Management, sales, or administration <sup>a</sup>	Professional services	Teaching	Other <sup>b</sup>
	All employed		Any R&D		Applied research		Basic research		Design		Development																
	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE															
All fields	857,200	1,975	540,350	2,375	300,950	2,225	180,500	2,150	64,450	1,275	133,400	1,625	86,100	1,425	351,450	2,375	121,550	1,600	245,900	2,050	81,800	1,475					
Science	640,300	1,900	383,650	1,950	211,650	1,825	155,800	1,900	32,200	950	73,250	1,275	54,450	975	265,650	2,100	105,000	1,475	200,850	1,875	63,450	1,275					
Biological, agricultural, and environmental life sciences	220,700	1,100	143,750	1,325	82,700	1,325	65,250	1,050	7,800	475	26,150	725	11,100	475	102,300	1,300	31,350	975	53,350	1,050	22,750	750					
Agricultural and food sciences	17,400	350	11,900	375	8,600	325	3,050	200	750	100	3,150	225	600	75	8,300	350	1,400	150	3,950	250	1,900	175					
Agricultural sciences	950	50	650	50	500	50	150	25	S	S	150	50	50	25	500	50	50	25	250	50	150	25					
Animal sciences	4,550	175	2,900	175	1,900	150	800	125	150	50	800	125	100	50	2,250	175	550	100	1,250	125	500	75					
Food sciences and technology	3,750	175	2,600	175	1,750	175	700	150	200	50	950	100	S	S	1,750	175	250	75	650	100	450	75					
Plant sciences	5,900	250	4,300	225	3,350	225	1,000	125	250	75	1,050	150	200	75	2,900	250	400	75	1,150	150	550	100					
Soil sciences	2,200	125	1,500	100	1,150	100	400	75	150	50	200	50	150	50	950	125	100	50	600	100	250	50					
Biochemistry and biophysics	29,450	425	20,250	500	9,250	475	10,550	425	1,200	200	4,350	375	1,750	225	14,350	550	3,450	325	6,100	425	2,550	275					
Biochemistry	24,350	400	16,550	475	7,550	425	8,600	425	950	200	3,650	350	1,100	225	12,200	525	2,850	325	5,100	375	2,200	250					
Biophysics	5,100	175	3,700	175	1,750	175	1,950	175	200	75	700	125	650	125	2,150	175	650	100	1,000	150	350	75					
Cell, cellular biology, and molecular biology	31,200	450	18,550	600	9,300	450	10,200	550	950	175	3,650	325	800	150	15,450	575	5,700	425	6,850	450	3,550	350					
Microbiological sciences and immunology	23,800	400	15,150	475	8,550	425	7,000	400	700	150	3,650	350	400	125	11,250	450	4,250	325	4,950	350	2,450	250					
Immunology	8,950	200	6,000	250	3,700	250	2,500	225	250	75	1,600	225	100	75	3,850	250	1,900	200	1,650	200	850	150					
Microbiological sciences	14,900	325	9,150	375	4,850	325	4,500	300	450	125	2,050	250	250	100	7,400	375	2,350	275	3,300	250	1,600	200					
Natural resources and conservation	8,800	225	5,700	225	4,350	175	1,300	150	450	75	800	125	600	100	4,400	225	600	125	2,400	150	1,200	150					
Fish, fisheries, wildlife and wildlands science and management	2,200	150	1,450	100	1,250	100	300	75	100	25	100	50	150	50	1,200	125	100	50	450	75	300	75					
Forestry	2,600	150	1,700	150	1,200	100	400	125	150	50	350	100	200	50	1,250	150	200	75	700	75	350	100					
Natural resource conservation, research, management, and policy	4,000	150	2,600	150	1,900	150	600	100	250	75	350	75	250	75	1,950	150	250	75	1,200	125	600	100					
Zoology	7,200	225	4,550	250	2,600	200	2,000	200	250	125	750	175	300	75	3,350	225	500	100	2,600	175	1,000	150					
Other biological sciences	102,800	675	67,650	825	40,000	725	31,150	725	3,450	250	9,800	400	6,700	325	45,200	700	15,400	650	26,500	675	10,050	450					
Biomathematics, bioinformatics, and computational biology	5,150	100	4,400	125	3,350	150	1,000	100	400	75	650	100	1,750	125	1,500	125	300	75	700	100	100	50					
Botany and plant biology	6,150	225	3,950	200	2,450	175	2,000	175	150	50	500	100	300	75	2,550	175	500	125	2,050	200	750	125					
Epidemiology, ecology, and population biology	15,950	275	11,450	325	8,100	325	4,350	275	250	75	700	150	1,200	175	7,400	300	650	150	5,500	325	1,700	200					
Genetics	8,750	250	6,150	275	3,100	225	3,350	225	250	75	900	125	850	150	3,900	250	1,050	150	1,900	200	700	100					
Neurobiology and neuroscience	16,800	275	11,200	350	5,600	325	6,100	375	700	150	1,250	175	1,200	175	7,450	350	3,500	300	3,700	300	1,600	225					
Nutrition sciences	4,150	125	2,500	150	1,750	125	700	100	200	50	450	75	100	75	1,950	125	500	75	1,350	125	550	75					

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Field of study	Research and development																					
	All employed		Any R&D		Applied research		Basic research		Design		Development		Computer applications		Management, sales, or administration <sup>a</sup>		Professional services		Teaching		Other <sup>b</sup>	
	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE
Pharmacology and toxicology	12,700	300	8,300	300	5,250	325	3,500	300	350	100	1,750	200	200	75	5,900	325	2,600	250	2,450	250	1,300	150
Physiology, pathology, and related sciences	15,400	300	8,650	325	4,750	275	4,050	300	550	100	1,850	175	200	75	6,950	300	3,400	250	4,300	300	1,600	225
Biological and biomedical sciences, general	12,750	300	7,800	325	4,050	275	4,450	300	450	100	1,100	150	600	150	5,500	325	2,150	275	3,250	275	1,100	150
Biological and biomedical sciences, other	4,950	200	3,200	225	1,600	175	1,650	200	150	75	600	125	250	75	2,150	175	750	150	1,400	150	600	150
Computer and information sciences	31,100	400	20,600	500	11,500	450	4,350	325	3,400	325	5,750	400	12,450	500	10,100	400	550	125	7,850	375	2,000	225
Computer science	26,750	400	17,750	500	9,800	450	3,750	325	2,950	325	5,200	400	11,450	475	8,500	400	350	100	6,350	375	1,600	225
Information science, studies	2,600	75	1,600	100	1,000	100	350	75	250	50	250	50	400	75	1,050	100	150	50	1,000	100	250	75
Computer and information sciences, other	1,800	50	1,300	50	750	50	300	50	200	50	350	50	600	50	550	50	50	25	500	50	150	25
Mathematics and statistics	36,650	450	24,850	550	11,800	525	10,900	450	2,750	250	3,050	275	8,400	375	8,750	350	1,000	150	18,550	500	2,600	250
Applied mathematics	8,500	200	6,000	275	3,350	275	2,200	225	700	150	750	125	2,550	225	1,800	175	300	100	3,850	250	500	100
Mathematics	16,500	375	10,150	375	2,950	300	6,300	350	1,050	175	1,000	175	3,350	250	3,950	250	350	100	9,750	375	1,300	150
Statistics	7,450	225	5,800	275	4,050	250	1,350	200	650	125	900	200	1,700	200	1,950	200	200	75	2,750	225	450	125
Mathematics and statistics, other	4,200	125	2,850	125	1,450	125	1,050	125	400	75	350	75	800	100	1,050	125	150	50	2,200	125	350	75
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	133,750	950	89,400	1,075	45,250	975	33,700	800	12,300	575	26,550	775	16,100	650	55,000	975	8,000	450	34,650	825	13,550	600
Astronomy and astrophysics	5,850	175	4,050	200	1,200	150	2,400	175	700	125	350	75	1,200	125	2,200	150	200	75	2,000	175	500	100
Chemistry, except biochemistry	65,300	700	42,050	800	23,400	725	13,150	500	4,700	375	15,950	600	3,200	325	30,350	700	4,650	350	16,000	650	7,400	450
Inorganic chemistry	8,750	225	4,950	275	2,700	225	1,500	175	450	100	2,000	175	250	75	4,150	250	600	150	3,050	250	1,000	150
Organic chemistry	17,600	375	11,950	400	7,100	400	3,900	325	1,000	175	4,350	325	250	125	8,200	400	1,250	175	4,500	350	1,800	225
Chemistry, other, except biochemistry	39,000	575	25,100	650	13,600	525	7,750	400	3,250	325	9,600	475	2,700	325	18,000	550	2,750	250	8,400	450	4,600	350
Geosciences, atmospheric sciences, and ocean sciences	22,050	300	15,350	325	8,350	300	7,500	275	1,200	125	1,900	150	2,950	175	8,600	275	1,150	125	6,850	250	2,250	175
Atmospheric sciences and meteorology	3,900	75	2,950	100	1,800	100	1,300	75	300	50	400	50	1,050	75	1,200	75	100	25	800	75	350	50
Geological and earth sciences, geosciences	13,550	275	9,250	275	4,800	250	4,600	250	650	100	1,300	150	1,400	175	5,500	250	800	125	4,650	225	1,400	150
Ocean sciences and marine sciences	2,150	75	1,400	75	850	75	650	75	50	25	150	25	200	50	1,050	75	100	25	600	50	250	50
Oceanography, chemical and physical	2,450	125	1,700	100	900	100	1,000	100	200	50	100	50	300	75	900	100	150	50	750	100	250	50
Physics	40,550	575	28,000	675	12,350	500	10,650	550	5,750	400	8,350	600	8,750	525	13,800	600	2,000	225	9,850	500	3,400	325
Psychology	115,350	825	43,150	875	27,200	800	12,250	525	2,850	225	6,850	375	2,300	225	51,050	1,050	55,800	900	32,450	775	10,500	575
Clinical psychology	41,100	525	9,950	550	7,300	450	1,700	250	300	100	1,450	275	350	125	18,200	700	29,700	675	8,100	525	2,650	325
Counseling and applied psychology	14,850	275	2,700	250	1,750	200	400	100	200	75	600	125	S	S	6,950	375	10,250	375	3,750	250	1,600	225
Educational and school psychology	14,100	275	5,400	350	3,700	300	950	175	350	100	1,250	150	250	75	6,450	350	5,350	325	4,650	275	1,500	200
Industrial and organizational psychology	4,850	150	2,450	150	1,550	150	350	75	350	100	450	75	D	D	3,250	175	1,050	150	1,200	150	450	100
Research and experimental psychology	27,800	400	16,950	400	9,500	350	6,950	325	1,100	150	2,350	200	1,250	150	11,250	425	4,700	275	11,050	350	3,000	275

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			Any R&D		Applied research		Basic research		Design		Development											
	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	3,600	300	2,100	225	1,350	200	300	150	500	125	250	100	2,750	250	3,300	300	2,200	225	700	175
Psychology, other	4,750	175	2,100	175	1,350	150	550	125	250	100	300	75	100	75	2,150	125	1,450	175	1,550	175	600	100
Social sciences	102,700	900	61,900	750	33,200	750	29,300	775	3,100	300	4,900	350	4,050	350	38,500	800	8,350	500	54,000	950	12,000	525
Economics	26,900	550	18,800	600	12,800	550	6,850	450	1,050	200	1,200	200	2,050	275	10,150	500	2,750	325	11,100	475	1,950	250
Political science and government	22,450	425	12,600	450	5,750	325	7,100	450	450	125	850	150	450	100	8,350	400	1,650	225	12,650	475	2,900	275
Political science and government	18,350	400	10,400	425	3,950	300	6,700	425	400	125	600	150	200	75	6,200	375	1,150	225	11,300	450	2,400	275
Public policy analysis	4,100	175	2,250	175	1,800	150	400	75	100	50	250	75	250	75	2,100	150	500	100	1,350	150	500	100
Sociology, demography, and population studies	15,200	325	9,350	350	4,550	300	4,950	300	450	100	750	150	400	125	5,750	300	850	150	8,700	325	1,750	175
Other social sciences	38,150	500	21,150	500	10,150	350	10,350	450	1,150	175	2,150	200	1,200	150	14,250	375	3,100	225	21,600	475	5,450	300
Anthropology	11,400	300	6,800	300	2,950	200	4,050	275	300	100	500	125	150	75	4,200	250	850	150	6,350	300	1,650	200
Area, ethnic, cultural, gender, and group studies	3,900	125	1,700	125	400	75	1,000	125	100	50	350	50	D	D	1,450	125	400	75	2,500	150	650	100
Geography and cartography	4,750	175	3,100	150	2,050	150	1,100	125	200	75	200	50	400	100	1,600	175	250	75	2,650	150	400	75
International relations and national security studies	2,350	150	1,050	100	500	75	550	100	50	25	50	25	D	D	900	100	250	75	1,400	100	350	75
Linguistics	4,950	250	2,450	200	800	150	1,300	175	200	75	400	100	150	50	1,850	200	200	75	3,250	225	850	150
Urban studies, affairs	1,600	100	950	100	650	75	250	50	50	50	100	50	100	50	650	75	200	50	700	75	150	50
Social sciences, other	9,250	250	5,050	250	2,750	200	2,150	175	200	50	500	100	400	75	3,600	200	950	125	4,800	200	1,350	150
Engineering	176,700	1,175	132,650	1,275	71,150	1,150	20,300	750	31,150	900	54,850	925	30,700	850	68,650	1,000	9,000	450	29,300	825	14,300	675
Aerospace, aeronautical, and astronautical engineering	7,050	225	5,850	250	3,200	225	1,000	175	1,350	175	2,000	200	1,700	200	2,450	225	200	100	1,100	150	300	75
Chemical engineering	20,800	500	14,450	475	7,300	425	2,400	300	2,800	300	7,250	375	1,750	225	10,300	475	1,150	225	2,650	275	2,600	300
Civil engineering	19,250	400	13,550	450	7,700	425	2,200	275	4,450	375	2,400	300	2,250	250	8,400	425	1,750	250	4,850	350	1,500	225
Electrical and computer engineering	48,550	650	37,900	675	19,050	575	4,950	400	8,500	500	18,950	575	12,850	575	15,650	650	1,750	250	6,400	450	3,100	325
Computer engineering	7,000	175	5,250	250	2,550	200	1,150	150	700	100	2,100	200	3,150	200	2,000	175	150	50	1,250	150	200	50
Electrical, electronics, and communications engineering	41,550	625	32,650	650	16,450	550	3,800	400	7,800	475	16,850	575	9,700	550	13,600	625	1,600	250	5,150	425	2,950	325
Mechanical engineering	26,550	425	20,950	525	10,550	600	2,950	300	5,950	450	8,800	450	5,300	450	9,200	525	700	150	4,950	425	1,600	275
Industrial engineers	16,450	350	12,600	425	6,900	425	2,000	250	2,500	250	6,450	400	950	175	7,250	375	650	150	1,700	225	2,200	250
Other engineering	38,050	450	27,400	450	16,500	450	4,850	350	5,650	300	9,000	400	5,850	300	15,400	400	2,800	225	7,650	375	2,950	250
Agricultural engineering	1,900	75	1,350	75	1,000	75	150	50	250	50	350	75	200	50	700	75	100	50	550	75	200	50
Bioengineering and biomedical engineering	13,200	250	9,800	300	6,150	325	2,100	250	1,550	200	3,750	275	1,500	175	5,650	275	1,400	150	1,950	225	900	150

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	All employed		Any R&D		Applied research		Basic research		Design		Development																
	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE	Number	SE															
Engineering mechanics, physics, and science	4,400	150	3,550	175	1,900	150	850	150	800	100	1,100	125	650	100	1,500	125	200	75	800	125	300	75					
Industrial and manufacturing engineering	8,800	275	6,000	275	3,400	225	850	125	1,450	175	1,550	200	1,900	175	3,300	225	450	100	2,700	225	650	125					
Nuclear engineering	3,100	125	2,200	125	1,450	125	250	50	400	75	900	100	650	75	1,150	100	300	100	400	75	250	50					
Engineering, other	6,600	200	4,550	250	2,600	200	650	150	1,150	150	1,300	150	1,000	150	3,050	175	350	75	1,250	150	700	100					
Health	40,200	475	24,000	575	18,150	550	4,400	300	1,100	200	5,250	300	950	150	17,150	500	7,500	375	15,750	525	4,050	325					
Communication disorders sciences and services	3,100	125	1,600	125	1,250	125	250	50	50	25	200	50	50	25	1,100	125	900	100	1,700	125	300	75					
Hospital and medical administration services	1,550	100	950	75	700	75	150	50	50	25	200	50	50	25	800	100	250	50	500	75	150	50					
Pharmacy, pharmaceutical sciences, and administration	8,050	175	6,200	250	4,200	250	1,100	150	450	150	2,550	225	250	75	3,600	250	850	125	1,250	175	850	150					
Public health	8,400	225	5,500	275	4,400	250	950	150	300	75	800	125	300	75	3,800	225	1,650	225	2,450	250	1,000	175					
Registered nursing, nursing administration, nursing research	9,000	250	3,700	250	2,750	225	500	125	100	50	600	150	S	S	3,800	300	2,000	250	5,300	300	800	175					
Health sciences, other	10,150	225	6,050	250	4,850	275	1,450	175	150	50	900	125	200	75	4,000	225	1,850	175	4,550	250	950	150					

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

SE = standard error.

<sup>a</sup> Administration includes accounting, finance, contracts, and human resources.<sup>b</sup> Includes production, operations, maintenance, and other activities not broken out separately.**Note(s):**

Numbers are rounded to the nearest 50. Standard errors are rounded up to the nearest 25. Detail may exceed total due to multiple responses. Primary and secondary work activities were self-defined by respondent in response to the question: "On which two activities...did you work the most hours during a typical week on this job?" 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.