DOCUMENT RESUME

ED 438 187 SE 063 217

AUTHOR	Kang, Kelly H.
TITLE	Characteristics of Doctoral Scientists and Engineers in the United States: 1997. Detailed Statistical Tables.
INSTITUTION	National Science Foundation, Arlington, VA. Div. of Science Resources Studies.
REPORT NO	NSF-00-308
PUB DATE	1999-11-00
NOTE	178p.; For 1995 report, see ED 414 203.
AVAILABLE FROM	National Science Foundation, Div. of Science Resources Studies, 4201 Wilson Blvd., Arlington, VA 22230. Tel: 703-292-5111. For full text: http://nsf.gov/cgi-bin/getpub?nsf00308.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Research (143) -- Tests/Questionnaires (160)
EDRS PRICE	MF01/PC08 Plus Postage.
DESCRIPTORS	Demography; *Doctoral Degrees; Employment Patterns; Engineering Education; *Engineers; Higher Education; Minority Groups; Population Trends; Postdoctoral Education; Professional Development; Science Education; *Scientists; Tables (Data)
IDENTIFIERS	National Science Foundation

ABSTRACT

This report presents data on the demographic and employment characteristics of the nation's doctoral scientists and engineers. Data were developed as part of the Longitudinal Doctorate Project. Current information on the supply and utilization of doctoral personnel in science and engineering reflects the results of the 1997 Survey of Doctorate Recipients (SDR), the 13th in a biennial series. The population of the 1997 survey included persons under the age of 76 who hold doctorates in science or engineering from U.S. institutions. This report provides information on the number of scientists and engineers by demographic characteristics such as citizenship, place of birth, field of degree; and employment-related characteristics such as occupation, sector of employment, median salary, and various labor force rates. Some tables in this report include estimates for doctoral scientists and engineers employed in four-year colleges and universities. Detailed statistical tables, technical notes, and the survey instrument are also included. The Technical Notes section contains information on survey methodology, coverage, concepts, definitions, and sampling errors. (WRM)

Characteristics of Doctoral Scientists and Engineers in the United States: 1997

Detailed Statistical Tables

Division of Science Resources Studies
Directorate for Social, Behavioral, and Economic Sciences

National Science Foundation

November 1999

Characteristics of Doctoral Scientists and Engineers in the United States: 1997

Detailed Statistical Tables

Kelly H. Kang, Project Officer

Division of Science Resources Studies
Directorate for Social, Behavioral, and Economic Sciences

National Science Foundation

November 1999

DIVISION OF SCIENCE RESOURCES STUDIES

The Division of Science Resources Studies (SRS) fulfills the legislative mandate of the National Science Foundation Act to ...

> *provide a central clearinghouse for the collection, interpretation, and analysis of data on scientific and engineering resources and to provide a source of information for policy formulation by other agencies of the Federal Government...*

To carry out this mandate, SRS designs, supports, and directs periodic surveys as well as a variety of other data collections and research projects. These surveys yield the materials for SRS staff to compile, analyze, and disseminate quantitative information about domestic and international resources devoted to science, engineering, and technology.

If you have any comments or suggestions about this or any other SRS product or report, we would like to hear from you. Please direct your comments to:

National Science Foundation
Division of Science Resources Studies
4201 Wilson Blvd., Suite 965
Arlington, VA 22230
Telephone: (703) 306-1780
Fax: (703) 306-0510
email: srsweb@nsf.gov

Suggested Citation
National Science Foundation, Division of Science Resources Studies, *Characteristics of Doctoral Scientists and Engineers in the United States: 1997,* NSF 00-308, Project Officer, Kelly H. Kang (Arlington, VA 1999).

November 1999

SRS data are available through the World Wide Web (http://www.nsf.gov/sbe/srs/stats.htm). For more information about obtaining reports, contact pubs@nsf.gov or call (301) 947-2722. For NSF's Telephonic Device for the Deaf, dial (703) 306-0090.

ACKNOWLEDGMENTS

This publication was prepared by Kelly H. Kang, Project Officer for the Survey of Doctorate Recipients, Science and Engineering Human Resources Statistics Program (HRS) of the National Science Foundation's Division of Science Resources Studies (SRS), under the overall direction of Mary J. Golladay, Program Director, HRS and Mary E. Frase, Acting Division Director, SRS. Mary Collins of Westat provided oversight in the production and a detail review of the tables. Anne Houghton, Julia Harriston, and Tanya Gore of SRS provided editorial assistance.

SRS is grateful to Patricia Green, Natalie Suter, Rachel Harter, and the project staff at the National Opinion Research Center (NORC) for having conducted the survey in 1997.

CONTENTS

SECTION I. GENERAL NOTES

This report presents data on the demographic and employment characteristics of the nation's doctoral scientists and engineers. The data were developed as part of the Doctorate Data Project.[1] The goal of the 1997 Survey of Doctorate Recipients (SDR) is to provide policymakers and researchers with high-quality data and analyses for making informed decisions related to the educational achievement and career patterns of the nation's doctoral scientists and engineers. Current information on the supply and utilization of doctoral personnel in science and engineering reflects the results of SDR, the thirteenth in a biennial series. The population of the 1997 survey includes persons under the age of 76 who hold doctorates in science or engineering from U.S. institutions.

The SDR is a longitudinal demographic survey of science and engineering doctorate holders conducted biennially for the National Science Foundation (NSF) and for other Federal agencies (current and past sponsors included NIH and DOE) since 1973. Several changes have been made to the 1997 tables and are noted in the Technical Notes, included in the back of this report. (See appendix A.) The Technical Notes section also contains information on survey methodology, coverage, concepts, definitions, and sampling errors.

The detailed statistical tables in this report provide information on the number of scientists and engineers by demographic characteristic such as citizenship, place of birth, field of degree, and employment-related characteristic such as occupation, sector of employment, median salary, and various labor force rates.

For further information on the survey or the availability of data on S&E doctorates, please go to http://www.nsf.gov/sbe/srs/cdse/start.htm or contact –

Kelly H. Kang
Division of Science Resources Studies
National Science Foundation, Room 965
4201 Wilson Boulevard
Arlington, VA. 22230

Telephone: (703)306-1776, ext.6943
E-mail: kkang@nsf.gov

[1] The Doctorate Data Project consists of the Survey of Doctorate Recipients, a biennial survey conducted since 1973, and the Survey of Earned Doctorates, an annual census of research doctorates awarded since 1920, which forms the Doctorate Records File.

SECTION II. DETAILED STATISTICAL TABLES

Table *Page*

EMPLOYMENT STATUS TABLES ON ALL DOCTORAL SCIENTISTS AND ENGINEERS:

DEMOGRAPHIC TABLES ON ALL DOCTORAL SCIENTISTS AND ENGINEERS:

Table *Page*

BASIC TABLES ON ALL EMPLOYED DOCTORAL SCIENTISTS AND ENGINEERS:

DEMOGRAPHIC TABLES ON ALL EMPLOYED DOCTORAL SCIENTISTS AND ENGINEERS:

Table *Page*

EMPLOYMENT-RELATED CHARACTERISTICS ON ALL EMPLOYED DOCTORAL SCIENTISTS AND ENGINEERS:

MEDIAN ANNUAL SALARIES OF ALL EMPLOYED DOCTORAL SCIENTISTS AND ENGINEERS:

Table *Page*

Table 1. Doctoral scientists and engineers, by field of doctorate and employment status: 1997

Field of doctorate	Total	Employed				Unemployed/ seeking	Retired	Not empl'd/ not seeking
		Total	Full-time	Part-time	Postdoc appt			
Total	582,080	518,440	453,350	39,450	25,640	6,390	45,340	11,910
Sciences	484,600	429,820	370,710	35,720	23,390	5,400	38,680	10,700
Computer and mathematical sciences	35,060	32,400	29,980	1,770	650	190	2,070	400
Computer/information sciences	8,080	8,000	7,640	220	150	S	S	60
Mathematical sciences	26,980	24,400	22,340	1,560	500	170	2,070	340
Biological and agricultural sciences	142,100	124,600	102,880	7,840	13,880	1,890	11,760	3,840
Agricultural/food sciences	18,530	15,670	14,090	1,000	580	280	2,300	280
Biological sciences	118,580	104,630	84,830	6,610	13,200	1,480	8,930	3,540
Environmental life sciences	4,990	4,300	3,960	230	100	130	540	S
Health sciences	18,940	17,180	15,340	1,270	570	140	1,140	480
Physical and related sciences	120,960	105,250	93,510	6,690	5,050	1,730	11,720	2,270
Chemistry except biochemistry	63,730	54,220	48,720	3,300	2,200	1,130	7,130	1,250
Earth/atmos/ocean sciences	17,240	15,110	13,260	1,080	770	250	1,440	440
Physics and astronomy	39,990	35,920	31,520	2,320	2,080	350	3,150	570
Social sciences	80,690	71,070	64,090	6,000	980	920	7,200	1,500
Economics	23,140	20,080	18,720	1,250	110	170	2,540	350
Political and related sciences	17,700	15,820	14,340	1,210	260	260	1,440	190
Sociology	15,020	13,230	11,700	1,410	120	90	1,360	340
Other social sciences	24,840	21,940	19,320	2,140	490	400	1,870	630
Psychology	86,850	79,320	64,910	12,150	2,260	530	4,790	2,220
Engineering	97,480	88,620	82,640	3,730	2,250	990	6,660	1,200
Aerospace/aeronautical engineering	4,220	3,720	3,440	100	180	S	410	80
Chemical engineering	14,010	12,280	11,320	630	330	250	1,260	230
Civil/architectural engineering	8,620	8,190	7,680	340	160	80	230	120
Electrical/computer engineering	26,010	23,750	22,590	760	400	170	1,830	250
Materials/metallurgical engineering	9,370	8,510	7,650	480	380	80	590	190
Mechanical engineering	11,950	11,080	10,420	450	210	100	680	90
Other engineering	23,310	21,100	19,550	960	590	300	1,670	250

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 2. Doctoral scientists and engineers, by occupation and employment status: 1997

Occupation*	Total	Employed				Unemployed/ seeking	Retired	Not empl'd/ not seeking
		Total	Full-time	Part-time	Postdoc appt			
Total	582,080	518,440	453,350	39,450	25,640	6,390	45,340	11,910
Scientists	358,520	319,130	270,950	25,920	22,270	3,810	28,270	7,310
Computer and mathematical scientists	49,460	45,350	41,920	2,570	860	540	2,900	680
Computer/information scientists	22,200	20,820	19,530	970	320	280	800	300
Mathematical scientists	6,670	5,920	5,360	410	150	110	400	250
Postsecondary teachers, computer and mathematical sciences	20,600	18,610	17,030	1,190	390	150	1,710	130
Life and related scientists	111,640	97,550	77,770	5,030	14,750	1,500	9,510	3,080
Agricultural scientists	11,570	9,170	7,930	640	600	190	1,900	310
Biological scientists	62,990	55,590	39,170	2,600	13,820	1,180	4,000	2,230
Forestry and conservation scientists	1,480	1,230	1,170	S	S	S	250	S
Postsecondary teachers, life and related sciences	35,600	1,230	1,170	S	S	S	250	S
Physical and related scientists	82,600	72,240	63,990	4,010	4,250	1,020	8,060	1,280
Chemists, except biochemistry	28,660	24,560	21,780	1,280	1,500	490	3,030	580
Earth scientists	10,160	8,830	7,540	480	810	130	1,030	160
Physics and astronomers	14,890	13,280	10,920	670	1,690	130	1,290	180
Other physical scientists	1,590	1,280	1,210	S	60	S	270	S
Postsecondary teachers, physical and related sciences	27,300	24,290	22,540	1,560	190	270	2,430	310
Social scientists	49,090	43,370	39,160	3,530	680	430	4,720	580
Economists	7,480	6,640	6,050	530	60	100	650	90
Political scientists	1,240	870	640	80	150	80	300	S
Sociologists and anthropologists	4,060	3,310	2,560	480	270	S	510	210
S&T historians and other social scientists	2,140	1,840	1,710	110	S	S	200	70
Postsecondary teachers, social and related sciences	34,170	30,710	28,210	2,330	180	190	3,070	200
Psychologists	65,720	60,630	48,110	10,790	1,740	320	3,080	1,700
Psychologists	48,590	45,120	33,730	9,750	1,650	230	1,820	1,420
Postsecondary teachers, psychology	17,140	15,510	14,380	1,040	90	90	1,260	280
Engineers	77,220	69,740	64,880	2,910	1,940	720	5,940	820
Aerospace/aeronautical engineers	4,690	3,990	3,770	110	110	S	560	100
Chemical engineers	7,670	6,730	6,110	330	290	190	690	60
Civil and architectural engineers	3,510	3,350	3,070	180	110	S	130	S
Electric and related engineers	14,850	13,500	12,980	400	120	70	1,100	200
Industrial engineers	1,260	1,220	1,120	100	S	S	S	S
Mechanical engineers	8,490	7,820	7,370	270	190	70	540	S
Other engineers	17,910	16,000	14,110	1,080	820	200	1,460	240
Postsecondary teachers, engineering	18,850	17,140	16,360	460	310	80	1,460	180
Non-S&E occupations	146,340	129,570	117,520	10,610	1,430	1,870	11,130	3,780
Managers, administrators, etc	78,750	71,010	67,830	2,810	370	680	6,190	870
Health and related occupations	15,760	14,440	12,220	1,540	690	170	830	310
Teachers, except S&E postsecondary teachers	23,770	20,780	18,500	2,090	180	340	2,060	600
Social services and related occupations	2,400	2,020	1,760	230	S	S	150	230
Technologists, etc	5,140	4,570	3,970	500	90	140	390	S
Sales and marketing occupations	6,000	5,230	4,130	1,110	S	90	380	300
Other non-S&E occupations	14,520	11,530	9,110	2,330	90	440	1,130	1,430

* If the respondent was unemployed, occupation of last job was reported.

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 3. Doctoral scientists and engineers, by broad field of doctorate, employment status, and sex: 1997

Employment status/field of doctorate	Total	Male	Female
All Fields			
Total	582,080	449,220	132,860
Employed full-time	477,900	375,810	102,100
Employed part-time	40,540	23,310	17,230
Unemployed, seeking	6,390	4,730	1,670
Retired	45,340	40,410	4,930
Not employed, not seeking	11,910	4,970	6,930
Sciences			
Total	484,600	357,540	127,060
Employed full-time	393,100	295,760	97,340
Employed part-time	36,720	19,920	16,800
Unemployed, seeking	5,400	3,850	1,550
Retired	38,680	33,770	4,910
Not employed, not seeking	10,700	4,250	6,460
Computer and information sciences			
Total	8,080	6,700	1,390
Employed full-time	7,790	6,510	1,280
Employed part-time	220	150	70
Unemployed, seeking	S	S	S
Retired	S	S	S
Not employed, not seeking	60	S	S
Mathematical sciences			
Total	26,980	23,400	3,580
Employed full-time	22,820	20,150	2,670
Employed part-time	1,580	1,040	540
Unemployed, seeking	170	90	80
Retired	2,070	1,870	200
Not employed, not seeking	340	260	90
Biological and agricultural sciences			
Total	142,100	105,310	36,790
Employed full-time	116,300	87,290	29,020
Employed part-time	8,300	5,120	3,180
Unemployed, seeking	1,890	1,240	650
Retired	11,760	10,250	1,520
Not employed, not seeking	3,840	1,420	2,420

See explanatory information and SOURCE at end of table.

Table 3. Doctoral scientists and engineers, by broad field of doctorate, employment status, and sex: 1997

Employment status/field of doctorate	Total	Male	Female
Health sciences			
Total	18,940	9,060	9,880
Employed full-time	15,850	7,770	8,080
Employed part-time	1,330	380	950
Unemployed, seeking	140	80	60
Retired	1,140	700	440
Not employed, not seeking	480	130	350
Physical and related sciences			
Total	120,960	106,560	14,410
Employed full-time	98,400	87,080	11,330
Employed part-time	6,850	5,600	1,250
Unemployed, seeking	1,730	1,470	260
Retired	11,720	11,110	610
Not employed, not seeking	2,270	1,310	960
Social sciences			
Total	80,690	58,020	22,670
Employed full-time	64,970	46,980	17,980
Employed part-time	6,100	3,540	2,560
Unemployed, seeking	920	620	300
Retired	7,200	6,210	990
Not employed, not seeking	1,500	660	840
Psychology			
Total	86,850	48,500	38,350
Employed full-time	66,960	39,980	26,980
Employed part-time	12,350	4,100	8,250
Unemployed, seeking	530	350	190
Retired	4,790	3,640	1,150
Not employed, not seeking	2,220	440	1,780
Engineering			
Total	97,480	91,680	5,810
Employed full-time	84,810	80,050	4,760
Employed part-time	3,810	3,380	430
Unemployed, seeking	990	870	120
Retired	6,660	6,640	S
Not employed, not seeking	1,200	730	470

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 4. Doctoral scientists and engineers, by broad occupation, employment status, and sex: 1997

Employment status/occupation*	Total	Male	Female
All Occupations			
Total	582,080	449,220	132,860
Employed full-time	477,900	375,810	102,100
Employed part-time	40,540	23,310	17,230
Unemployed, seeking	6,390	4,730	1,670
Retired	45,340	40,410	4,930
Not employed, not seeking	11,910	4,970	6,930
Scientists			
Total	358,520	267,410	91,110
Employed full-time	292,370	222,750	69,620
Employed part-time	26,760	14,290	12,480
Unemployed, seeking	3,810	2,710	1,100
Retired	28,270	25,130	3,140
Not employed, not seeking	7,310	2,530	4,780
Computer and information scientists			
Total	27,540	24,030	3,520
Employed full-time	24,680	21,600	3,080
Employed part-time	1,270	990	280
Unemployed, seeking	290	230	70
Retired	980	970	S
Not employed, not seeking	320	240	80
Mathematical scientists			
Total	21,920	18,300	3,620
Employed full-time	18,050	15,370	2,680
Employed part-time	1,350	870	470
Unemployed, seeking	240	110	140
Retired	1,920	1,700	230
Not employed, not seeking	350	250	100
Life and related scientists			
Total	111,640	81,670	29,980
Employed full-time	92,060	68,010	24,040
Employed part-time	5,490	3,340	2,150
Unemployed, seeking	1,500	1,030	470
Retired	9,510	8,330	1;180
Not employed, not seeking	3,080	960	2,130

See explanatory information and SOURCE at end of table.

Table 4. Doctoral scientists and engineers, by broad occupation, employment status, and sex: 1997

Employment status/occupation*	Total	Male	Female
Physical and related scientists			
Total	82,600	72,240	10,370
Employed full-time	68,110	59,700	8,400
Employed part-time	4,140	3,410	720
Unemployed, seeking	1,020	890	130
Retired	8,060	7,630	430
Not employed, not seeking	1,280	600	680
Social and related scientists			
Total	49,090	36,120	12,970
Employed full-time	39,770	29,380	10,400
Employed part-time	3,590	2,180	1,410
Unemployed, seeking	430	290	140
Retired	4,720	4,150	570
Not employed, not seeking	580	120	450
Psychologists			
Total	65,720	35,060	30,660
Employed full-time	49,700	28,690	21,020
Employed part-time	10,930	3,490	7,440
Unemployed, seeking	320	170	150
Retired	3,080	2,360	720
Not employed, not seeking	1,700	360	1,340
Engineers			
Total	77,220	72,240	4,980
Employed full-time	66,740	62,560	4,180
Employed part-time	3,000	2,550	450
Unemployed, seeking	720	600	120
Retired	5,940	5,940	S
Not employed, not seeking	820	600	230
Non-S&E occupations			
Total	146,340	109,570	36,770
Employed full-time	118,800	90,510	28,290
Employed part-time	10,770	6,470	4,300
Unemployed, seeking	1,870	1,410	460
Retired	11,130	9,340	1,790
Not employed, not seeking	3,780	1,850	1,930

*If the respondent was unemployed, occupation of last job was reported

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipient

Table 5. Doctoral scientists and engineers, by broad field of doctorate, employment status, and race/ethnicity: 1997

Employment status/field of doctorate	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/Alaskan Native
All Fields						
Total	582,080	481,530	12,510	73,420	12,690	1,930
Employed full-time	477,900	388,370	11,070	65,800	11,010	1,660
Employed part-time	40,540	35,800	780	3,060	790	110
Unemployed, seeking	6,390	5,040	160	1,040	130	S
Retired	45,340	42,520	290	1,970	460	100
Not employed, not seeking	11,910	9,810	210	1,550	300	S
Sciences						
Total	484,600	414,080	11,210	46,660	10,860	1,780
Employed full-time	393,100	331,570	9,810	40,810	9,370	1,540
Employed part-time	36,720	32,570	770	2,550	740	100
Unemployed, seeking	5,400	4,420	140	730	90	S
Retired	38,680	36,470	290	1,460	380	80
Not employed, not seeking	10,700	9,060	200	1,130	280	S
Computer and information sciences						
Total	8,080	5,420	120	2,340	190	S
Employed full-time	7,790	5,200	100	2,290	190	S
Employed part-time	220	150	S	S	S	S
Unemployed, seeking	S	S	S	S	S	S
Retired	S	S	S	S	S	S
Not employed, not seeking	60	S	S	S	S	S
Mathematical sciences						
Total	26,980	21,910	400	4,010	620	S
Employed full-time	22,820	18,320	390	3,590	500	S
Employed part-time	1,580	1,260	S	290	S	S
Unemployed, seeking	170	160	S	S	S	S
Retired	2,070	1,890	S	100	80	S
Not employed, not seeking	340	290	S	S	S	S
Biological and agricultural sciences						
Total	142,100	121,440	2,500	15,060	2,690	410
Employed full-time	116,300	98,360	2,140	13,090	2,350	350
Employed part-time	8,300	7,170	170	800	160	S
Unemployed, seeking	1,890	1,550	S	280	S	S
Retired	11,760	11,180	90	390	70	S
Not employed, not seeking	3,840	3,180	70	500	90	S

See explanatory information and SOURCE at end of table.

Table 5. Doctoral scientists and engineers, by broad field of doctorate, employment status, and race/ethnicity: 1997

Employment status/field of doctorate	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/Alaskan Native
Health sciences						
Total	18,940	15,920	820	1,670	440	100
Employed full-time	15,850	13,190	720	1,470	380	100
Employed part-time	1,330	1,160	S	110	S	S
Unemployed, seeking	140	130	S	S	S	S
Retired	1,140	1,040	S	S	S	S
Not employed, not seeking	480	390	S	S	S	S
Physical and related sciences						
Total	120,960	100,620	1,550	16,080	2,380	330
Employed full-time	98,400	80,220	1,390	14,270	2,210	320
Employed part-time	6,850	6,010	120	650	70	S
Unemployed, seeking	1,730	1,350	S	340	S	S
Retired	11,720	11,130	S	500	70	S
Not employed, not seeking	2,270	1,920	S	320	S	S
Social sciences						
Total	80,690	69,330	3,000	5,790	2,080	480
Employed full-time	64,970	55,480	2,540	4,780	1,760	400
Employed part-time	6,100	5,200	240	470	150	S
Unemployed, seeking	920	760	50	70	S	S
Retired	7,200	6,660	110	320	90	S
Not employed, not seeking	1,500	1,240	60	140	S	S
Psychology						
Total	86,850	79,440	2,810	1,710	2,460	430
Employed full-time	66,960	60,800	2,530	1,320	1,980	340
Employed part-time	12,350	11,620	200	190	290	50
Unemployed, seeking	530	450	S	S	S	S
Retired	4,790	4,580	S	90	50	S
Not employed, not seeking	2,220	2,000	S	80	100	S
Engineering						
Total	97,480	67,450	1,310	26,760	1,830	140
Employed full-time	84,810	56,800	1,270	24,990	1,630	120
Employed part-time	3,810	3,230	S	520	50	S
Unemployed, seeking	990	620	S	310	S	S
Retired	6,660	6,040	S	510	80	S
Not employed, not seeking	1,200	750	S	430	S	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 6. Doctoral scientists and engineers, by broad occupation, employment status, and race/ethnicity: 1997

Employment status/occupation*	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/Alaskan Native
All Occupations						
Total	582,080	481,370	12,510	73,420	12,690	1,930
Employed full-time	477,900	388,220	11,070	65,800	11,010	1,660
Employed part-time	40,540	35,780	780	3,060	790	110
Unemployed, seeking	6,390	5,040	160	1,040	130	S
Retired	45,340	42,520	290	1,970	460	100
Not employed, not seeking	11,910	9,810	210	1,550	300	S
Scientists						
Total	358,520	300,960	7,410	40,430	8,300	1,270
Employed full-time	292,370	241,420	6,590	35,920	7,230	1,090
Employed part-time	26,760	23,840	490	1,820	490	100
Unemployed, seeking	3,810	3,080	70	570	80	S
Retired	28,270	26,490	130	1,300	290	S
Not employed, not seeking	7,310	6,130	130	830	210	S
Computer and information scientists						
Total	27,540	19,150	400	7,370	530	100
Employed full-time	24,680	16,740	350	7,010	510	80
Employed part-time	1,270	1,070	50	140	S	S
Unemployed, seeking	290	240	S	S	S	S
Retired	980	840	S	120	S	S
Not employed, not seeking	320	260	S	50	S	S
Mathematical scientists						
Total	21,920	17,550	390	3,330	620	S
Employed full-time	18,050	14,210	370	2,930	510	S
Employed part-time	1,350	1,120	S	200	S	S
Unemployed, seeking	240	190	S	S	S	S
Retired	1,920	1,780	S	70	70	S
Not employed, not seeking	350	240	S	80	S	S
Life and related scientists						
Total	111,640	93,510	1,770	13,910	2,170	280
Employed full-time	92,060	76,170	1,530	12,200	1,880	270
Employed part-time	5,490	4,630	100	640	110	S
Unemployed, seeking	1,500	1,140	S	290	S	S
Retired	9,510	9,010	S	390	70	S
Not employed, not seeking	3,080	2,560	60	390	80	S

See explanatory information and SOURCE at end of table.

Table 6. Doctoral scientists and engineers, by broad occupation, employment status, and race/ethnicity: 1997

Employment status/occupation*	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/Alaskan Native
Physical and related scientists						
Total	82,600	68,580	1,190	10,750	1,820	220
Employed full-time	68,110	55,590	1,090	9,510	1,680	200
Employed part-time	4,140	3,560	60	450	60	S
Unemployed, seeking	1,020	860	S	140	S	S
Retired	8,060	7,550	S	410	60	S
Not employed, not seeking	1,280	1,030	S	240	S	S
Social and related scientists						
Total	49,090	41,770	1,800	3,800	1,400	270
Employed full-time	39,770	33,480	1,550	3,240	1,240	210
Employed part-time	3,590	3,070	150	250	90	S
Unemployed, seeking	430	370	S	S	S	S
Retired	4,720	4,370	S	240	60	S
Not employed, not seeking	580	480	S	S	S	S
Psychologists						
Total	65,720	60,410	1,860	1,290	1,760	380
Employed full-time	49,700	45,240	1,700	1,010	1,430	300
Employed part-time	10,930	10,380	120	140	220	50
Unemployed, seeking	320	280	S	S	S	S
Retired	3,080	2,950	S	80	S	S
Not employed, not seeking	1,700	1,560	S	S	70	S
Engineers						
Total	77,220	54,420	960	20,200	1,520	120
Employed full-time	66,740	45,380	930	18,960	1,340	120
Employed part-time	3,000	2,600	S	340	60	S
Unemployed, seeking	720	430	S	220	S	S
Retired	5,940	5,480	S	390	70	S
Not employed, not seeking	820	530	S	290	S	S
Non-S&E occupations						
Total	146,340	125,990	4,150	12,790	2,870	540
Employed full-time	118,800	101,420	3,560	10,920	2,430	450
Employed part-time	10,770	9,340	280	910	240	S
Unemployed, seeking	1,870	1,530	70	260	S	S
Retired	11,130	10,540	160	270	100	50
Not employed, not seeking	3,780	3,160	80	440	90	S

*If the respondent was unemployed, occupation of last job was reported.

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 7. Selected employment characteristics of doctoral scientists and engineers, by field of doctorate: 1997

[In percent]

Field of doctorate	Unemployment rate	Involuntarily out-of-field rate	Labor force participation rate
Total	1.2	4.2	90.2
Sciences	1.2	4.4	89.8
Computer and mathematical sciences	0.6	4.7	93.0
Computer and information sciences	S	1.4	99.3
Mathematical sciences	0.7	5.8	91.1
Biological and agricultural sciences	1.5	3.7	89.0
Agricultural and food sciences	1.7	5.1	86.1
Biological sciences	1.4	3.6	89.5
Environmental life sciences	2.9	2.7	88.7
Health sciences	0.8	2.2	91.4
Physical and related sciences	1.6	6.4	88.4
Chemistry, except biochemistry	2.0	4.2	86.9
Earth /atmos/ocean sciences	1.6	6.1	89.1
Physics and astronomy	1.0	9.7	90.7
Social sciences	1.3	4.4	89.2
Economics	0.9	2.1	87.5
Political and related sciences	1.6	4.8	90.8
Sociology	0.7	3.5	88.7
Other social sciences	1.8	6.9	90.0
Psychology	0.7	3.1	91.9
Engineering	1.1	3.4	91.9
Aerospace/aeronautical engineering	S	5.7	88.4
Chemical engineering	2.0	2.6	89.4
Civil engineering	1.0	2.4	95.9
Electrical/computer engineering	0.7	3.8	92.0
Materials/metallurgical engineering	1.0	3.8	91.7
Mechanical engineering	0.9	2.4	93.6
Other engineering	1.4	3.9	91.7

NOTE: Labor force is defined as those employed (E) plus those unemployed and seeking work (U). Population (P) is defined as all S&E doctorate holders under age 76, residing in U.S. during the week of April 15, 1997, who earned their doctorate from U.S. institutions. The labor force participation rate (R_{LF}) is the ratio of the labor force to the population: $R_{LF} = (E+U)/P$. The unemployment rate (R_U) is the ratio of those who are unemployed but seeking employment (U) to the total labor force (E+U): $R_U = U/(E+U)$. Involuntary-out-of field rate is the percent of employed individuals who reported they were working part-time exclusively because suitable full-time work was not available and/or working in an area not related to the first doctoral degree (in their principal job) at least partially because suitable work in the field was not available.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 8. Selected employment characteristics of doctoral scientists and engineers, by occupation: 1997

[In percent]

Occupation*	Unemployment rate	Involuntarily out-of-field rate	Labor force participation rate
Total	1.2	4.2	90.2
Scientists	1.2	2.9	90.1
Computer and mathematical scientists	1.2	8.7	92.8
Computer/information scientists	1.3	16.2	95.1
Mathematical scientists	1.8	2.8	90.4
Postsecondary teachers, computer and mathematical sciences	0.8	2.3	91.1
Life and related scientists	1.5	1.7	88.7
Agricultural scientists	2.0	2.4	80.9
Biological scientists	2.1	1.8	90.1
Forestry and conservation scientists	S	S	83.1
Postsecondary teachers, life and related sciences	0.4	1.4	89.0
Physical and related scientists	1.4	2.1	88.7
Chemists, except biochemistry	2.0	2.1	87.4
Earth scientists	1.4	2.6	88.2
Physics and astronomers	1.0	1.9	90.1
Other physical scientists	S	7.0	80.4
Postsecondary teachers, physical and related sciences	1.1	1.7	90.0
Social scientists	1.0	2.0	89.2
Economists	1.5	0.8	90.1
Political scientists	S	1.6	76.1
Sociologists and anthropologists	0.9	S	82.3
S&T historians and other social scientists	1.9	2.0	87.7
Postsecondary teachers, social and related sciences	0.6	2.2	90.4
Psychologists	0.5	2.0	92.7
Psychologists	0.5	2.2	93.3
Postsecondary teachers, psychology	0.6	1.3	91.0
Engineers	1.0	3.2	91.2
Aerospace/aeronautical engineers	1.0	5.2	85.9
Chemical engineers	2.8	3.1	90.3
Civil and architectural engineers	0.6	2.8	96.1
Electric and related engineers	0.5	4.3	91.3
Industrial engineers	3.5	S	100.0
Mechanical engineers	0.9	2.4	93.0
Other engineers	1.3	5.5	90.5
Postsecondary teachers, engineering	0.4	0.5	91.3
Non-S&E occupations	1.4	8.1	89.8
Managers, administrators, etc.	1.0	4.5	91.0
Health and related occupations	1.2	8.3	92.8
Teachers, except S&E postsecondary teachers	1.6	4.7	88.8
Social services and related occupations	S	6.8	84.1
Technologists, etc.	3.0	32.2	91.6
Sales and marketing occupations	1.7	24.1	88.7
Other non-S&E occupations	3.7	20.1	82.4

*If the respondent was unemployed, occupation of last job was reported.

NOTE: Labor force is defined as those employed (E) plus those unemployed and seeking work (U). Population (P) is defined as all S&E doctorate holders under age 76, residing in U.S. during the week of April 15, 1997, who earned their doctorate from U.S. institutions. The labor force participation rate (R_{LF}) is the ratio of the labor force to the population: $R_{LF} = (E+U)/P$. The unemployment rate (R_U) is the ratio of those who are unemployed but seeking employment (U) to the total labor force (E+U): $R_U = U/(E+U)$. Involuntary-out-of field rate is the percent of employed individuals who reported they were working part-time exclusively because suitable full-time work was not available and/or working in an area not related to the first doctoral degree (in their principal job) at least partially because suitable work in the field was not available.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 9. Doctoral scientists and engineers, by field of doctorate and sex: 1997

Field of doctorate	Total	Male	Female
Total	582,080	449,220	132,860
Sciences	484,600	357,540	127,060
Computer and mathematical sciences	35,060	30,100	4,960
Computer/information sciences	8,080	6,700	1,390
Mathematical sciences	26,980	23,400	3,580
Biological and agricultural sciences	142,100	105,310	36,790
Agricultural/food sciences	18,530	15,910	2,620
Biological sciences	118,580	84,940	33,640
Environmental life sciences	4,990	4,460	530
Health sciences	18,940	9,060	9,880
Physical and related sciences	120,960	106,560	14,410
Chemistry except biochemistry	63,730	54,080	9,650
Earth/atmos/ocean sciences	17,240	15,080	2,160
Physics and astronomy	39,990	37,400	2,590
Social sciences	80,690	58,020	22,670
Economics	23,140	19,630	3,510
Political and related sciences	17,700	14,100	3,600
Sociology	15,020	9,490	5,530
Other social sciences	24,840	14,800	10,030
Psychology	86,850	48,500	38,350
Engineering	97,480	91,680	5,810
Aerospace/aeronautical engineering	4,220	4,160	60
Chemical engineering	14,010	13,170	840
Civil/architectural engineering	8,620	8,120	500
Electrical/computer engineering	26,010	24,790	1,220
Materials/metallurgical engineering	9,370	8,370	1,000
Mechanical engineering	11,950	11,550	390
Other engineering	23,310	21,520	1,790

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 10. Doctoral scientists and engineers, by occupation and sex: 1997

Occupation*	Total	Male	Female
Total	582,080	449,220	132,860
Scientists	358,520	267,410	91,110
Computer and mathematical scientists	49,460	42,320	7,140
Computer/information scientists	22,200	19,650	2,540
Mathematical scientists	6,670	5,260	1,410
Postsecondary teachers, computer and mathematical sciences	20,600	17,410	3,190
Life and related scientists	111,640	81,670	29,980
Agricultural scientists	11,570	9,920	1,650
Biological scientists	62,990	43,170	19,830
Forestry and conservation scientists	1,480	1,330	150
Postsecondary teachers, life and related sciences	35,600	27,250	8,350
Physical and related scientists	82,600	72,240	10,370
Chemists, except biochemistry	28,660	24,310	4,350
Earth scientists	10,160	9,250	910
Physics and astronomers	14,890	13,860	1,020
Other physical scientists	1,590	1,430	170
Postsecondary teachers, physical and related sciences	27,300	23,390	3,920
Social scientists	49,090	36,120	12,970
Economists	7,480	5,820	1,660
Political scientists	1,240	1,050	200
Sociologists and anthropologists	4,060	2,090	1,970
S&T historians and other social scientists	2,140	1,120	1,020
Postsecondary teachers, social and related sciences	34,170	26,050	8,120
Psychologists	65,720	35,060	30,660
Psychologists	48,590	24,470	24,120
Postsecondary teachers, psychology	17,140	10,590	6,550
Engineers	77,220	72,240	4,980
Aerospace/aeronautical engineers	4,690	4,430	260
Chemical engineers	7,670	7,080	590
Civil and architectural engineers	3,510	3,280	230
Electric and related engineers	14,850	14,160	700
Industrial engineers	1,260	1,050	210
Mechanical engineers	8,490	8,260	220
Other engineers	17,910	16,350	1,550
Postsecondary teachers, engineering	18,850	17,650	1,200
Non-S&E occupations	146,340	109,570	36,770
Managers, administrators, etc.	78,750	65,260	13,490
Health and related occupations	15,760	10,800	4,950
Teachers, except S&E postsecondary teachers	23,770	12,740	11,040
Social services and related occupations	2,400	1,360	1,040
Technologists, etc.	5,140	4,640	500
Sales and marketing occupations	6,000	4,990	1,010
Other non-S&E occupations	14,520	9,780	4,740

* If the respondent was unemployed, occupation of last job was reported.

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 11. Doctoral scientists and engineers, by field of doctorate and race/ethnicity: 1997

Field of doctorate	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/Alaskan Native
Total	582,080	481,530	12,510	73,420	12,690	1,930
Sciences	484,600	414,080	11,210	46,660	10,860	1,780
Computer and mathematical sciences	35,060	27,330	520	6,350	820	S
Computer/information sciences	8,080	5,420	120	2,340	190	S
Mathematical sciences	26,980	21,910	400	4,010	620	S
Biological and agricultural sciences	142,100	121,440	2,500	15,060	2,690	410
Agricultural/food sciences	18,530	15,800	290	2,020	390	S
Biological sciences	118,580	101,120	2,140	12,760	2,230	340
Environmental life sciences	4,990	4,520	70	290	60	S
Health sciences	18,940	15,920	820	1,670	440	100
Physical and related sciences	120,960	100,620	1,550	16,080	2,380	330
Chemistry except biochemistry	63,730	52,160	1,080	8,870	1,410	220
Earth/atmos/ocean sciences	17,240	15,570	S	1,300	310	S
Physics and astronomy	39,990	32,890	440	5,910	660	90
Social sciences	80,690	69,330	3,000	5,790	2,080	480
Economics	23,140	19,530	590	2,490	470	50
Political and related sciences	17,700	15,600	850	820	370	60
Sociology	15,020	13,160	730	650	420	60
Other social sciences	24,840	21,040	840	1,830	820	310
Psychology	86,850	79,440	2,810	1,710	2,460	430
Engineering	97,480	67,450	1,310	26,760	1,830	140
Aerospace/aeronautical engineering	4,220	3,280	40	840	70	S
Chemical engineering	14,010	10,030	150	3,610	220	S
Civil/architectural engineering	8,620	5,790	220	2,390	220	S
Electrical/computer engineering	26,010	17,470	320	7,630	520	70
Materials/metallurgical engineering	9,370	6,220	70	2,870	200	S
Mechanical engineering	11,950	7,780	150	3,780	230	S
Other engineering	23,310	16,880	360	5,650	360	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 12. Doctoral scientists and engineers, by occupation and race/ethnicity: 1997

Occupation*	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/Alaskan Native
Total	582,080	481,530	12,510	73,420	12,690	1,930
Scientists	358,520	301,110	7,410	40,430	8,300	1,270
Computer and mathematical scientists	49,460	36,700	790	10,690	1,160	130
Computer/information scientists	22,200	15,360	200	6,150	410	80
Mathematical scientists	6,670	5,220	140	1,120	190	S
Postsecondary teachers, computer and mathematical sciences	20,600	16,130	450	3,420	560	S
Life and related scientists	111,640	93,520	1,770	13,910	2,170	280
Agricultural scientists	11,570	10,050	90	1,210	200	S
Biological scientists	62,990	50,220	880	10,400	1,310	190
Forestry and conservation scientists	1,480	1,350	S	70	S	S
Postsecondary teachers, life and related sciences	35,600	31,910	770	2,230	650	40
Physical and related scientists	82,600	68,620	1,190	10,750	1,820	220
Chemists, except biochemistry	28,660	21,970	540	5,590	530	S
Earth scientists	10,160	8,830	80	940	270	50
Physics and astronomers	14,890	12,500	100	2,060	220	S
Other physical scientists	1,590	1,410	S	120	S	S
Postsecondary teachers, physical and related sciences	27,300	23,910	450	2,050	750	140
Social scientists	49,090	41,820	1,800	3,800	1,400	270
Economists	7,480	6,160	50	1,020	210	S
Political scientists	1,240	1,060	30	110	S	S
Sociologists and anthropologists	4,060	3,630	170	160	100	10
S&T historians and other social scientists	2,140	1,900	40	160	S	S
Postsecondary teachers, social and related sciences	34,170	29,070	1,510	2,340	1,020	220
Psychologists	65,720	60,450	1,860	1,290	1,760	380
Psychologists	48,590	44,820	1,350	870	1,240	320
Postsecondary teachers, psychology	17,140	15,630	510	410	520	60
Engineers	77,220	54,430	960	20,200	1,520	120
Aerospace/aeronautical engineers	4,690	3,720	S	870	S	S
Chemical engineers	7,670	5,310	S	2,190	120	S
Civil and architectural engineers	3,510	2,040	70	1,290	110	S
Electric and related engineers	14,850	9,920	160	4,540	230	S
Industrial engineers	1,260	840	S	370	60	S
Mechanical engineers	8,490	5,220	90	3,020	150	S
Other engineers	17,910	12,700	120	4,740	300	50
Postsecondary teachers, engineering	18,850	14,690	430	3,180	510	S

See explanatory information and SOURCE at end of table.

Table 12. Doctoral scientists and engineers, by occupation and race/ethnicity: 1997

Occupation*	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/Alaskan Native
Non-S&E occupations	146,340	126,000	4,150	12,790	2,870	540
Managers, administrators, etc.	78,750	68,390	2,170	6,340	1,540	300
Health and related occupations	15,760	13,060	470	1,860	320	50
Teachers, except S&E postsecondary teachers	23,770	20,490	900	1,670	570	140
Social services and related occupations	2,400	2,120	140	70	70	S
Technologists, etc.	5,140	4,130	70	910	S	S
Sales and marketing occupations	6,000	4,990	60	800	150	S
Other non-S&E occupations	14,520	12,820	340	1,130	220	S

*If the respondent was unemployed, occupation of last job was reported.

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 13. Doctoral scientists and engineers, by field of doctorate and citizenship status: 1997

Field of doctorate	Total	U.S. citizen			Non-U.S. citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Total	582,080	531,450	465,260	66,190	50,630	41,560	9,070
Sciences	484,600	450,450	405,970	44,480	34,150	28,280	5,870
Computer and mathematical sciences	35,060	29,800	25,330	4,470	5,260	4,460	800
Computer/information sciences	8,080	5,830	4,770	1,060	2,250	1,970	280
Mathematical sciences	26,980	23,970	20,560	3,410	3,010	2,480	530
Biological and agricultural sciences	142,100	132,250	119,240	13,000	9,850	7,970	1,880
Agricultural/food sciences	18,530	17,250	15,150	2,090	1,280	1,030	250
Biological sciences	118,580	110,310	99,670	10,640	8,270	6,700	1,580
Environmental life sciences	4,990	4,690	4,420	270	300	240	60
Health sciences	18,940	17,800	16,060	1,730	1,150	910	240
Physical and related sciences	120,960	110,440	96,330	14,120	10,520	9,000	1,520
Chemistry except biochemistry	63,730	58,770	51,140	7,640	4,960	4,300	660
Earth/atmos/ocean sciences	17,240	15,870	14,560	1,310	1,370	1,170	200
Physics and astronomy	39,990	35,800	30,630	5,170	4,190	3,520	670
Social sciences	80,690	74,920	67,420	7,500	5,770	4,570	1,190
Economics	23,140	20,640	18,120	2,510	2,500	1,900	600
Political and related sciences	17,700	16,890	15,150	1,750	810	600	200
Sociology	15,020	14,260	13,330	930	750	690	70
Other social sciences	24,840	23,130	20,820	2,310	1,710	1,380	330
Psychology	86,850	85,250	81,590	3,660	1,610	1,380	220
Engineering	97,480	81,000	59,290	21,720	16,480	13,280	3,200
Aerospace/aeronautical engineering	4,220	3,630	2,770	860	590	470	120
Chemical engineering	14,010	11,960	9,230	2,730	2,050	1,540	510
Civil/architectural engineering	8,620	7,030	4,580	2,440	1,600	1,340	250
Electrical/computer engineering	26,010	20,850	14,780	6,070	5,150	4,010	1,150
Materials/metallurgical engineering	9,370	7,620	5,800	1,820	1,750	1,450	300
Mechanical engineering	11,950	9,750	7,010	2,730	2,200	1,830	370
Other engineering	23,310	20,170	15,110	5,060	3,140	3,640	500

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 14. Doctoral scientists and engineers, by occupation and citizenship status: 1997

Occupation*	Total	U.S. citizen			Non-U.S. citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Total	582,080	531,450	465,260	66,190	50,630	41,560	9,070
Scientists	358,520	327,310	292,860	34,440	31,210	25,400	5,810
Computer and mathematical scientists	49,460	41,190	33,900	7,290	8,270	6,680	1,600
Computer/information scientists	22,200	17,800	14,410	3,390	4,400	3,450	950
Mathematical scientists	6,670	5,900	4,780	1,120	770	530	230
Postsecondary teachers, computer and mathematical sciences	20,600	17,490	14,720	2,770	3,110	2,690	410
Life and related scientists	111,640	102,040	91,560	10,480	9,610	7,670	1,940
Agricultural scientists	11,570	10,830	9,720	1,110	740	560	180
Biological scientists	62,990	55,370	48,640	6,730	7,620	5,970	1,660
Forestry and conservation scientists	1,480	1,440	1,380	60	S	S	S
Postsecondary teachers, life and related sciences	35,600	34,400	31,830	2,570	1,200	1,100	110
Physical and related scientists	82,600	74,640	65,290	9,340	7,960	6,750	1,210
Chemists, except biochemistry	28,660	25,070	21,100	3,970	3,600	3,080	520
Earth scientists	10,160	9,100	8,280	820	1,060	900	170
Physics and astronomers	14,890	13,310	11,480	1,830	1,580	1,180	400
Other physical scientists	1,590	1,410	1,340	70	190	180	S
Postsecondary teachers, physical and related sciences	27,300	25,760	23,110	2,650	1,540	1,420	120
Social scientists	49,090	45,020	40,340	4,690	4,060	3,170	890
Economists	7,480	6,410	5,760	650	1,070	810	260
Political scientists	1,240	1,160	990	170	80	S	60
Sociologists and anthropologists	4,060	3,870	3,650	220	190	100	100
S&T historians and other social scientists	2,140	2,040	1,910	130	100	80	S
Postsecondary teachers, social and related sciences	34,170	31,550	28,040	3,510	2,620	2,160	460
Psychologists	65,720	64,420	61,770	2,650	1,300	1,130	180
Psychologists	48,590	47,750	45,660	2,100	830	750	90
Postsecondary teachers, psychology	17,140	16,670	16,110	550	470	380	90
Engineers	77,220	64,150	48,500	15,660	13,070	10,630	2,440
Aerospace/aeronautical engineers	4,690	4,360	3,450	910	320	260	70
Chemical engineers	7,670	6,250	4,780	1,470	1,420	990	430
Civil and architectural engineers	3,510	2,590	1,560	1,020	920	780	140
Electric and related engineers	14,850	11,680	8,870	2,810	3,170	2,530	650
Industrial engineers	1,260	960	740	220	300	230	70
Mechanical engineers	8,490	6,700	4,450	2,250	1,790	1,430	360
Other engineers	17,910	15,110	11,890	3,220	2,790	2,310	480
Postsecondary teachers, engineering	18,850	16,500	12,750	3,750	2,350	2,110	240

See explanatory information and SOURCE at end of table.

Table 14. Doctoral scientists and engineers, by occupation and citizenship status: 1997

Occupation*	Total	U.S. citizen			Non-U.S. citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Non-S&E occupations	146,340	140,000	123,900	16,090	6,350	5,530	820
Managers, administrators, etc.	78,750	76,490	67,760	8,730	2,260	2,030	220
Health and related occupations	15,760	14,930	12,740	2,180	830	740	90
Teachers, except S&E postsecondary teachers	23,770	22,510	20,110	2,410	1,260	1,070	200
Social services and related occupations	2,400	2,320	2,130	190	80	70	S
Technologists, etc.	5,140	4,500	3,970	520	640	570	80
Sales and marketing occupations	6,000	5,440	4,700	740	570	510	60
Other non-S&E occupations	14,520	13,810	12,490	1,320	710	560	160

*If the respondent was not currently employed, occupation of last job was reported.

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 15. Doctoral scientists and engineers, by field of doctorate and age: 1997

Field of doctorate	Total	Under 35	35-39	40-44	45-49	50-54	55-59	60-64	65-75
Total	582,080	66,290	76,600	89,500	92,220	92,340	67,910	39,930	57,290
Sciences	484,600	51,310	59,970	75,940	80,840	78,590	56,000	32,210	49,740
Computer and mathematical sciences	35,060	5,230	5,040	4,980	5,160	6,110	4,160	2,280	2,120
Computer/information sciences	8,080	2,110	2,260	1,690	1,320	610	60	S	S
Mathematical sciences	26,980	3,110	2,780	3,290	3,840	5,500	4,090	2,270	2,100
Biological and agricultural sciences	142,100	16,840	19,270	25,400	23,080	20,560	13,930	8,970	14,050
Agricultural/food sciences	18,530	1,240	2,210	3,850	2,760	2,370	2,100	1,410	2,600
Biological sciences	118,580	15,450	16,480	20,710	19,290	17,190	11,290	7,180	10,990
Environmental life sciences	4,990	160	570	840	1,040	1,010	540	380	450
Health sciences	18,940	1,310	1,950	3,540	4,170	3,370	2,080	1,180	1,340
Physical and related sciences	120,960	15,230	16,510	16,050	14,970	18,100	16,280	9,100	14,710
Chemistry except biochemistry	63,730	8,380	9,070	8,960	6,760	8,850	8,440	4,800	8,480
Earth/atmos/ocean sciences	17,240	1,370	2,700	2,780	2,760	2,900	1,710	1,220	1,810
Physics and astronomy	39,990	5,480	4,750	4,320	5,450	6,350	6,140	3,090	4,420
Social sciences	80,690	5,470	7,700	10,850	14,960	15,040	11,320	5,560	9,780
Economics	23,140	2,070	2,510	3,320	3,950	3,720	2,960	1,300	3,310
Political and related sciences	17,700	1,280	1,540	2,210	2,770	3,870	2,340	1,470	2,220
Sociology	15,020	620	1,000	1,810	2,980	2,890	2,330	1,490	1,890
Other social sciences	24,840	1,500	2,660	3,510	5,260	4,560	3,690	1,290	2,360
Psychology	86,850	7,220	9,500	15,120	18,490	15,410	8,240	5,130	7,750
Engineering	97,480	14,980	16,630	13,560	11,380	13,760	11,900	7,720	7,550
Aerospace/aeronautical engineering	4,220	760	540	250	530	670	640	510	330
Chemical engineering	14,010	2,350	2,300	1,850	1,240	2,030	1,680	1,410	1,150
Civil/architectural engineering	8,620	1,070	1,460	1,300	1,020	1,210	1,250	810	520
Electrical/computer engineering	26,010	4,840	4,510	3,400	2,690	3,590	3,100	1,710	2,170
Materials/metailurgical engineering	9,370	1,620	1,720	1,750	1,190	790	1,120	570	620
Mechanical engineering	11,950	1,810	2,520	1,830	1,530	1,550	1,090	980	640
Other engineering	23,310	2,540	3,580	3,190	3,200	3,930	3,030	1,730	2,120

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 16. Doctoral scientists and engineers, by occupation and age: 1997

Occupation*	Total	Under 35	35-39	40-44	45-49	50-54	55-59	60-64	65-75
Total	582,080	66,290	76,600	89,500	92,220	92,340	67,910	39,930	57,290
Scientists	358,520	45,980	51,120	57,970	55,790	51,580	37,430	22,490	36,150
Computer and mathematical scientists	49,460	7,760	7,690	7,300	7,480	8,060	5,340	2,890	2,950
Computer/information scientists	22,200	4,300	3,980	3,420	3,450	3,540	1,940	940	640
Mathematical scientists	6,670	880	1,060	900	1,260	1,150	620	370	440
Postsecondary teachers, computer and mathematical sciences	20,600	2,580	2,650	2,980	2,770	3,370	2,780	1,580	1,880
Life and related scientists	111,640	15,730	17,590	20,060	16,550	14,150	9,990	6,480	11,100
Agricultural scientists	11,570	990	1,480	2,090	1,770	1,390	1,170	870	1,820
Biological scientists	62,990	12,590	12,000	11,930	9,040	6,340	4,110	2,370	4,620
Forestry and conservation scientists	1,480	S	180	300	210	240	90	200	240
Postsecondary teachers, life and related sciences	35,600	2,130	3,940	5,750	5,530	6,180	4,620	3,040	4,420
Physical and related scientists	82,600	11,900	12,350	11,880	10,130	10,170	9,750	6,170	10,250
Chemists, except biochemistry	28,660	5,170	5,060	4,290	3,310	2,880	2,650	1,660	3,660
Earth scientists	10,160	1,010	1,340	1,740	1,500	1,620	970	820	1,160
Physics and astronomers	14,890	2,840	1,990	2,020	1,600	1,890	1,970	770	1,810
Other physical scientists	1,590	180	250	230	260	230	120	160	170
Postsecondary teachers, physical and related sciences	27,300	2,710	3,720	3,600	3,460	3,550	4,030	2,770	3,460
Social scientists	49,090	4,440	5,590	7,290	8,160	7,930	6,300	3,330	6,050
Economists	7,480	950	1,140	1,430	1,040	1,030	780	270	840
Political scientists	1,240	150	150	100	60	300	210	S	270
Sociologists and anthropologists	4,060	230	390	700	1,030	520	310	180	690
S&T historians and other social scientists	2,140	140	260	320	660	310	250	60	130
Postsecondary teachers, social and related sciences	34,170	2,970	3,650	4,730	5,370	5,780	4,750	2,800	4,120
Psychologists	65,720	6,160	7,900	11,450	13,460	11,280	6,070	3,620	5,790
Psychologists	48,590	4,570	6,030	9,050	10,530	8,120	4,150	2,270	3,880
Postsecondary teachers, psychology	17,140	1,590	1,870	2,400	2,930	3,160	1,920	1,350	1,910

See explanatory information and SOURCE at end of table.

Table 16. Doctoral scientists and engineers, by occupation and age: 1997

Occupation*	Total	Under 35	35-39	40-44	45-49	50-54	55-59	60-64	65-75
Engineers	77,220	12,380	13,340	10,930	8,680	10,120	8,450	6,370	6,950
Aerospace/aeronautical engineers	4,690	570	660	470	600	550	860	410	560
Chemical engineers	7,670	1,580	1,610	1,150	650	870	490	580	730
Civil and architectural engineers	3,510	420	620	610	510	510	410	230	210
Electric and related engineers	14,850	3,470	2,550	1,790	1,500	1,690	1,820	770	1,260
Industrial engineers	1,260	230	290	250	140	220	S	S	60
Mechanical engineers	8,490	1,470	1,660	1,210	1,130	1,100	780	690	450
Other engineers	17,910	2,500	3,020	2,650	2,130	2,730	1,670	1,460	1,750
Postsecondary teachers, engineering	18,850	2,140	2,930	2,800	2,030	2,450	2,370	2,200	1,930
Non-S&E occupations	146,340	7,930	12,140	20,600	27,760	30,640	22,020	11,070	14,190
Managers, administrators, etc.	78,750	2,100	5,220	10,480	15,940	18,070	14,240	6,250	6,460
Health and related occupations	15,760	1,700	1,750	2,990	2,390	2,980	1,640	990	1,310
Teachers, except S&E postsecondary teachers	23,770	1,450	2,170	3,450	4,550	4,730	2,710	1,870	2,850
Social services and related occupations	2,400	110	230	200	540	470	310	160	380
Technologists, etc.	5,140	730	730	780	810	840	640	180	430
Sales and marketing occupations	6,000	460	550	890	1,200	900	670	570	770
Other non-S&E occupations	14,520	1,370	1,490	1,810	2,340	2,650	1,820	1,050	1,990

*If the respondent was not currently employed, occupation of last job was reported.

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 17. Employed doctoral scientists and engineers, by field of doctorate and sector of employment: 1997

Field of doctorate	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Total	518,440	233,180	13,650	165,040	25,100	26,330	38,070	15,450	1,620
Sciences	429,820	206,220	13,280	115,900	23,000	23,870	31,910	14,210	1,420
Computer and mathematical sciences	32,400	18,740	730	9,800	520	950	1,510	140	S
Computer/information sciences	8,000	3,320	70	3,950	130	220	270	S	S
Mathematical sciences	24,400	15,420	660	5,850	390	730	1,250	90	S
Biological and agricultural sciences	124,600	68,640	3,040	29,700	3,040	5,730	10,820	3,430	200
Agricultural/ food sciences	15,670	7,470	250	5,130	680	370	1,510	240	S
Biological sciences	104,630	59,540	2,750	23,630	2,290	5,140	8,330	2,790	160
Environmental life sciences	4,300	1,640	S	950	70	210	970	400	S
Health sciences	17,180	9,210	450	3,670	580	1,440	1,150	680	S
Physical and related sciences	105,250	36,940	2,650	47,020	2,970	3,550	10,190	1,820	110
Chemistry except biochemistry	54,220	15,620	1,540	30,200	1,670	1,640	2,940	610	S
Earth/atmos/ocean sciences	15,110	7,140	320	3,490	500	550	2,380	710	S
Physics and astronomy	3,590	14,180	800	13,330	810	1,360	4,880	500	80
Social sciences	71,070	45,510	2,020	8,380	2,460	4,170	4,880	2,640	1,020
Economics	20,080	11,460	120	3,360	440	1,000	2,250	540	910
Political and related sciences	15,820	10,660	490	1,500	570	790	1,040	740	S
Sociology	13,230	9,480	510	820	450	1,010	460	480	S
Other social sciences	21,940	13,910	900	2,700	1,000	1,380	1,120	880	60
Psychology	79,320	27,190	4,400	17,340	13,440	8,030	3,360	5,510	50
Engineering	88,620	26,960	370	19,140	2,100	2,460	6,150	1,240	210
Aerospace/aeronautical engineering	3,720	1,110	S	1,850	130	160	450	S	S
Chemical engineering	12,280	2,580	50	8,410	290	390	510	S	S
Civil/architectural engineering	8,190	3,570	S	3,230	170	230	570	380	S
Electrical/computer engineering	23,750	6,980	70	14,130	500	570	1,270	170	70
Materials/metallurgical engineering	8,510	1,570	S	5,620	280	190	780	S	S
Mechanical engineering	11,080	3,280	S	6,540	270	280	650	S	S
Other engineering	21,100	7,880	130	9,370	470	660	1,920	580	90

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 18. Employed doctoral scientists and engineers, by occupation and sector of employment: 1997

Occupation*	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Total	518,440	233,180	13,650	165,040	25,100	26,330	38,070	15,450	1,620
Scientists	319,130	168,420	8,600	76,050	16,310	14,520	25,250	8,870	1,110
Computer and mathematical scientists	45,350	20,650	830	18,510	780	1,470	2,510	510	100
Computer/information scientists	20,820	1,480	60	16,300	580	800	1,220	300	100
Mathematical scientists	5,920	1,350	S	2,200	200	670	1,290	210	S
Postsecondary teachers, computer and mathematical sciences	18,610	17,820	780	S	S	S	S	S	S
Life and related scientists	97,550	60,600	1,860	18,420	1,150	4,070	9,110	2,170	160
Agricultural scientists	9,170	3,330	S	3,320	280	280	1,670	290	S
Biological scientists	55,590	27,520	S	14,830	810	3,680	6,890	1,660	160
Forestry and conservation scientists	1,230	280	S	230	70	50	480	130	S
Postsecondary teachers, life and related sciences	31,550	29,470	1,820	S	S	60	80	80	S
Physical and related scientists	72,240	32,620	1,730	24,610	1,220	2,040	8,670	1,230	130
Chemists, except biochemistry	24,560	3,000	50	17,770	700	770	1,860	370	S
Earth scientists	8,830	2,760	S	2,200	260	510	2,610	460	S
Physics and astronomers	13,280	4,150	S	3,860	220	730	3,860	370	80
Other physical scientists	1,280	130	S	770	S	S	310	S	S
Postsecondary teachers, physical and related sciences	43,370	33,250	920	S	S	S	S	S	S
Social scientists	43,370	33,250	920	3,010	760	1,400	2,500	830	700
Economists	6,640	1,090	S	2,140	400	480	1,520	320	700
Political scientists	870	290	S	70	S	210	250	S	S
Sociologists and anthropologists	3,310	1,340	S	510	240	440	510	250	S
S&T historians and other social scientists	1,840	780	S	270	80	260	220	220	S
Postsecondary teachers, social and related sciences	60,630	21,300	3,260	S	S	S	S	S	S
Psychologists	60,630	21,300	3,260	11,500	12,410	5,550	2,460	4,130	S
Psychologists	45,120	6,740	2,390	11,480	12,390	5,510	2,460	4,130	S
Postsecondary teachers, psychology	15,510	14,560	870	S	S	S	S	S	S

See explanatory information and SOURCE at end of table.

Table 18. Employed doctoral scientists and engineers, by occupation and sector of employment: 1997

Occupation*	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Engineers	69,740	22,770	170	37,920	1,410	1,730	4,830	860	50
Aerospace/aeronautical engineers	3,990	440	S	2,460	80	240	750	S	S
Chemical engineers	6,730	530	S	5,610	150	190	220	S	S
Civil and architectural engineers	3,350	440	S	2,060	160	80	250	370	S
Electric and related engineers	13,500	1,270	S	10,430	250	430	1,020	70	S
Industrial engineers	1,220	60	S	1,030	S	S	90	S	S
Mechanical engineers	7,820	900	S	5,760	170	200	740	S	S
Other engineers	16,000	2,300	S	10,460	540	570	1,740	380	S
Postsecondary teachers, engineering	17,140	16,850	130	100	S	S	S	S	S
Non-S&E occupations	129,570	41,990	4,880	51,070	7,380	10,080	7,980	5,720	460
Managers, administrators, etc.	71,010	17,530	1,360	34,110	1,620	6,270	5,750	3,980	410
Health and related occupations	14,440	5,520	120	4,240	1,400	1,770	880	490	S
Teachers, except S&E postsecondary teachers	20,780	16,970	2,970	420	140	100	80	100	S
Social services and related occupations	2,020	300	310	160	100	920	S	210	S
Technologists, etc.	4,570	440	S	3,440	180	100	230	150	S
Sales and marketing occupations	5,230	70	S	4,030	980	130	S	S	S
Other non-S&E occupations	11,530	1,180	90	4,670	2,960	800	1,010	780	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 19. Doctoral scientists and engineers employed in universities and 4-year colleges, by broad field of doctorate, sex, and academic rank: 1997

Field of doctorate/sex	Total	Full professor	Associate professor	Assistant professor	Instructor/ lecturer	Adjunct faculty	Other faculty	Does not apply
Total (number)	233,180	83,670	51,880	44,410	7,060	5,540	650	39,970
Male (percent)	74.9	88.4	74.3	63.1	53.0	61.0	86.3	66.3
Female (percent)	25.1	11.6	25.7	36.9	47.0	39.0	13.7	33.7
Sciences (number)	206,220	72,450	45,800	39,510	6,560	5,010	500	36,400
Male (percent)	72.5	86.9	71.7	60.2	50.5	58.5	87.8	64.0
Female (percent)	27.5	13.1	28.3	39.8	49.5	41.5	12.2	36.0
Computer and information sciences (number)	3,320	310	1,400	1,310	70	S	S	190
Male (percent)	77.7	84.3	76.5	77.4	S	S	S	88.1
Female (percent)	22.3	S	23.5	22.6	S	S	S	S
Mathematical sciences (number)	15,420	7,220	4,070	2,820	330	200	S	750
Male (percent)	87.5	93.7	88.9	75.2	69.1	56.5	S	82.5
Female (percent)	12.5	6.3	11.1	24.8	30.9	43.5	S	17.5
Biological and agricultural sciences (number)	68,640	21,210	13,120	13,090	2,620	1,470	180	16,950
Male (percent)	72.2	86.9	77.1	63.3	49.6	57.7	79.5	61.7
Female (percent)	27.8	13.1	22.9	36.7	50.4	42.3	S	38.3
Health sciences (number)	9,210	2,140	2,820	2,850	220	130	S	1,030
Male (percent)	40.9	62.9	34.6	32.1	38.2	S	S	36.6
Female (percent)	59.1	37.1	65.4	67.9	61.8	63.4	S	63.4
Physical and related sciences (number)	36,940	13,770	6,680	5,510	1,050	930	90	8,910
Male (percent)	86.7	95.8	86.5	73.9	70.4	79.7	96.5	83.2
Female (percent)	13.3	4.2	13.5	26.1	29.6	20.3	3.5	16.8
Social sciences (number)	45,510	18,230	11,880	9,150	1,220	1,340	140	3,560
Male (percent)	71.7	85.1	67.6	60.4	57.2	65.3	84.6	52.1
Female (percent)	28.3	14.9	32.4	39.6	42.8	34.7	S	47.9
Psychology (number)	27,190	9,570	5,840	4,790	1,050	890	S	5,000
Male (percent)	56.9	77.5	55.7	39.0	21.9	29.5	S	48.0
Female (percent)	43.1	22.5	44.3	61.0	78.1	70.5	S	52.0
Engineering (number)	26,960	11,230	6,080	4,900	510	530	150	3,570
Male (percent)	93.5	98.6	93.7	86.3	86.3	85.2	81.1	89.3
Female (percent)	6.5	1.4	6.3	13.7	13.7	14.8	S	10.7

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 20. Doctoral scientists and engineers employed in universities and 4-year colleges, by broad field of doctorate, sex, and tenure status: 1997

Field of doctorate/sex	Total	Tenured	Not tenured		Not applicable
			In tenure track	Not in track	
Total (number)	233,180	121,950	37,140	26,250	47,840
Male (percent)	74.9	83.7	65.1	63.6	66.4
Female (percent)	25.1	16.3	34.9	36.4	33.6
Sciences (number)	206,220	106,030	32,700	23,790	43,710
Male (percent)	72.5	81.8	62.0	60.8	64.2
Female (percent)	27.5	18.2	38.0	39.2	35.8
Computer and information sciences	3,320	1,450	1,270	260	350
Male (percent)	77.7	78.0	79.1	63.1	82.3
Female (percent)	22.3	22.0	20.9	36.9	17.7
Mathematical sciences (number)	15,420	10,900	2,100	950	1,460
Male (percent)	87.5	92.2	74.5	67.6	84.0
Female (percent)	12.5	7.8	25.5	32.4	16.0
Biological and agricultural sciences (number)	68,640	29,420	10,950	9,690	18,570
Male (percent)	72.2	84.4	64.9	63.5	61.8
Female (percent)	27.8	15.6	35.1	36.5	38.2
Health sciences (number)	9,210	3,900	2,500	1,220	1,600
Male (percent)	40.9	46.9	33.3	39.8	38.7
Female (percent)	59.1	53.1	66.7	60.2	61.3
Physical and related sciences (number)	36,940	18,650	4,690	4,350	9,250
Male (percent)	86.7	92.5	76.9	79.4	83.5
Female (percent)	13.3	7.5	23.1	20.6	16.5
Social sciences (number)	45,510	28,230	7,480	3,850	5,950
Male (percent)	71.7	78.1	62.1	56.7	62.7
Female (percent)	28.3	21.9	37.9	43.3	37.3
Psychology (number)	27,190	13,490	3,710	3,460	6,530
Male (percent)	56.9	71.0	40.4	39.8	46.3
Female (percent)	43.1	29.0	59.6	60.2	53.7
Engineering (number)	26,960	15,920	4,450	2,460	4,130
Male (percent)	93.5	96.6	87.8	90.9	89.2
Female (percent)	6.5	3.4	12.2	9.1	10.8

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 21. Doctoral scientists and engineers employed in universities and 4-year colleges, by broad field of doctorate, primary work activity, and secondary work activity: 1997

Field of doctorate/ primary work activity	Total	Secondary work activity						
		Total	R&D	Teaching	Management, sales, and administration	Computer applications	Other	No secondary activity
All Fields								
Total	233,180	100.0	42.9	21.0	17.1	5.0	7.6	6.4
R&D	91,380	100.0	26.0	41.4	16.6	6.5	4.4	5.1
Teaching	102,400	100.0	63.9	D	12.6	4.5	10.3	8.6
Management, sales, and administration	21,260	100.0	25.4	26.3	34.0	3.3	9.9	1.1
Computer applications	3,020	100.0	57.6	17.4	14.4	D	5.8	4.8
Other activities	15,140	100.0	25.0	33.0	27.6	2.9	4.9	6.6
Sciences								
Total	206,220	100.0	41.6	21.1	17.5	4.8	8.1	6.8
R&D	81,200	100.0	25.1	41.5	17.0	6.0	4.8	5.7
Teaching	89,610	100.0	62.3	D	12.9	4.6	11.1	9.2
Management, sales, and administration	18,670	100.0	25.5	25.6	33.8	3.3	10.7	1.2
Computer applications	2,670	100.0	56.4	19.0	14.4	D	5.9	4.3
Other activities	14,060	100.0	24.3	32.6	28.2	2.8	5.3	6.8
Computer and information sciences								
Total	3,320	100.0	48.1	25.3	7.0	9.6	3.7	6.4
R&D	1,060	100.0	20.3	73.3	S	S	S	D
Teaching	1,790	100.0	63.8	D	5.9	12.6	5.9	11.8
Management, sales, and administration	310	100.0	46.9	S	20.4	18.0	S	D
Computer applications	140	100.0	61.8	S	S	D	D	D
Other activities	S	100.0	S	S	D	S	D	D
Mathematical sciences								
Total	15,420	100.0	47.4	20.2	10.9	8.4	6.5	6.6
R&D	3,740	100.0	19.6	66.0	3.8	5.7	1.5	3.4
Teaching	9,860	100.0	63.3	D	9.3	10.0	8.8	8.6
Management, sales, and administration	1,070	100.0	13.7	26.7	42.2	8.2	5.8	S
Computer applications	350	100.0	39.6	50.9	S	D	S	D
Other activities	400	100.0	S	46.7	36.8	S	D	D
Biological and agricultural sciences								
Total	68,640	100.0	38.0	24.1	19.4	3.6	7.2	7.8
R&D	38,800	100.0	28.9	33.8	20.9	4.2	5.0	7.3
Teaching	18,030	100.0	60.6	D	13.3	3.6	11.8	10.7
Management, sales, and administration	5,290	100.0	36.0	22.5	28.2	2.6	10.2	S
Computer applications	720	100.0	58.5	23.2	12.6	D	S	S
Other activities	5,800	100.0	28.5	35.1	21.0	1.6	4.7	9.1

See explanatory information and SOURCE at end of table.

Table 21. Doctoral scientists and engineers employed in universities and 4-year colleges, by broad field of doctorate, primary work activity, and secondary work activity: 1997

Field of doctorate/ primary work activity	Total	Secondary work activity						
		Total	R&D	Teaching	Management, sales, and administration	Computer applications	Other	No secondary activity
Health sciences								
Total	9,210	100.0	36.0	22.2	21.8	4.1	11.9	4.0
R&D	2,980	100.0	19.8	45.9	19.9	7.9	4.1	2.3
Teaching	4,150	100.0	54.6	D	17.9	1.7	20.5	5.2
Management, sales, and administration	1,100	100.0	15.0	32.8	37.3	S	10.0	S
Computer applications	70	100.0	S	S	S	D	D	D
Other activities	910	100.0	28.5	33.4	26.8	S	S	6.7
Physical and related sciences								
Total	36,940	100.0	45.5	18.4	15.5	8.5	4.8	7.2
R&D	16,000	100.0	31.2	35.1	13.4	12.1	3.1	5.0
Teaching	15,750	100.0	63.2	D	14.0	6.2	5.8	10.8
Management, sales, and administration	3,040	100.0	31.9	23.0	31.2	5.4	8.0	0.5
Computer applications	760	100.0	61.2	8.2	14.4	D	7.5	8.7
Other activities	1,390	100.0	29.8	30.0	23.4	5.4	5.5	5.9
Social sciences								
Total	45,510	100.0	47.0	18.8	15.4	3.2	9.3	6.4
R&D	10,320	100.0	14.0	63.7	9.6	4.3	3.7	4.8
Teaching	28,220	100.0	64.9	D	11.9	3.0	11.9	8.4
Management, sales, and administration	5,130	100.0	19.8	27.8	43.4	0.9	7.5	S
Computer applications	410	100.0	56.5	S	28.5	D	S	S
Other activities	1,430	100.0	26.4	36.9	22.2	7.4	4.2	S
Psychology								
Total	27,190	100.0	34.6	20.9	22.3	3.1	13.3	5.9
R&D	8,300	100.0	14.7	45.1	21.9	4.7	10.1	3.4
Teaching	11,820	100.0	59.0	D	15.4	2.8	15.0	7.9
Management, sales, and administration	2,730	100.0	15.1	28.4	26.1	2.9	23.7	3.8
Computer applications	240	100.0	55.9	22.7	D	D	S	S
Other activities	4,100	100.0	16.1	26.9	41.7	1.3	7.9	6.0
Engineering								
Total	26,960	100.0	52.8	20.0	14.5	6.5	3.4	2.8
R&D	10,180	100.0	33.0	40.9	13.6	10.4	1.7	S
Teaching	12,780	100.0	75.5	D	10.5	4.4	4.8	4.9
Management, sales, and administration	2,590	100.0	24.9	31.3	35.4	3.9	4.5	D
Computer applications	340	100.0	66.6	S	S	D	S	S
Other activities	1,080	100.0	33.4	38.9	19.2	S	D	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).
D=The same work activity cannot be reported for both primary and secondary.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 22. Employed doctoral scientists and engineers, by field of doctorate and primary work activity: 1997

Field of doctorate	Total	Research and development					Teaching	Management, sales, and administration	Computer applications	Professional services	Other activity
		Total	Applied research	Basic research	Development	Design					
Total	518,440	210,840	100,730	69,220	28,790	12,110	113,030	83,760	24,710	61,100	24,990
Sciences	429,820	166,740	79,250	64,810	17,460	5,220	99,510	67,340	17,020	58,300	20,900
Computer and mathematical sciences	32,400	10,190	4,730	3,760	990	710	12,350	3,450	5,130	440	850
Computer/information sciences	8,000	2,950	1,500	830	390	240	1,850	1,070	2,060	S	60
Mathematical sciences	24,400	7,240	3,230	2,940	600	480	10,500	2,380	3,070	420	790
Biological and agricultural sciences	124,600	65,680	26,120	34,380	4,680	500	21,220	18,200	2,340	10,780	6,380
Agricultural/ food sciences	15,670	8,220	5,340	1,450	1,360	70	1,910	3,260	320	870	1,100
Biological sciences	104,630	55,570	19,250	32,770	3,150	390	18,470	14,060	1,910	9,690	4,940
Environmental life sciences	4,300	1,890	1,530	160	170	S	840	880	110	230	340
Health sciences	17,180	5,960	4,290	860	720	100	4,540	3,300	200	2,570	620
Physical and related sciences	105,250	52,510	25,270	15,600	8,920	2,720	18,320	18,570	6,250	3,790	5,820
Chemistry except biochemistry	54,220	27,640	14,320	6,550	5,830	950	8,990	10,760	1,490	2,100	3,250
Earth/atmos/ocean sciences	15,110	7,000	3,680	2,740	380	210	3,420	2,160	860	650	1,020
Physics and astronomy	35,920	17,870	7,280	6,310	2,710	1,570	5,910	5,640	3,900	1,040	1,560
Social sciences	71,070	18,460	11,000	5,790	1,080	590	29,860	12,910	1,710	3,860	4,290
Economics	20,080	7,500	4,960	2,020	270	240	6,850	3,210	570	1,030	930
Political and related sciences	15,820	2,620	1,460	960	140	60	7,200	3,480	250	960	1,310
Sociology	13,230	3,180	1,730	1,230	170	50	6,350	2,190	240	570	700
Other social sciences	21,940	5,170	2,850	1,580	500	230	9,460	4,030	640	1,290	1,340
Psychology	79,320	13,940	7,840	4,430	1,080	600	13,230	10,930	1,400	36,860	2,950
Engineering	88,620	44,100	21,480	4,410	11,330	6,880	13,520	16,420	7,700	2,800	4,090
Aerospace/aeronautical engineering	3,720	2,010	1,150	260	290	310	420	640	430	90	140
Chemical engineering	12,280	6,900	3,270	510	2,260	850	1,300	2,580	580	320	600
Civil/architectural engineering	8,190	3,100	1,430	270	360	1,030	2,140	1,460	470	450	570
Electrical/computer engineering	23,750	11,160	4,880	1,160	3,410	1,710	3,430	4,850	3,010	470	840
Materials/metallurgical engineering	8,510	5,310	2,780	520	1,700	310	520	2,030	200	60	380
Mechanical engineering	11,080	6,070	2,790	450	1,740	1,090	1,780	1,440	1,100	350	350
Other engineering	21,100	9,540	5,170	1,240	1,570	1,570	3,950	3,420	1,910	1,070	1,210

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 23. Employed doctoral scientists and engineers, by occupation and primary work activity: 1997

Occupation*	Total	Research and development					Teaching	Management, sales, and administration	Computer applications	Professional services	Other activities
		Total	Applied research	Basic research	Development	Design					
Total	518,440	210,840	100,730	69,220	28,790	12,110	113,030	83,760	24,710	61,100	24,990
Scientists	319,130	149,090	70,460	62,270	12,580	3,780	83,550	19,260	15,860	40,130	11,260
Computer and mathematical scientists	45,350	14,730	7,250	4,050	1,750	1,680	14,040	2,420	12,700	250	1,210
Computer/information scientists	20,820	6,530	3,100	610	1,350	1,470	140	1,770	11,600	100	690
Mathematical scientists	5,920	4,310	3,080	670	360	210	S	380	810	90	290
Postsecondary teachers, computer and mathematical sciences	18,610	3,880	1,080	2,770	S	S	13,860	280	300	60	230
Life and related scientists	97,550	66,860	26,950	35,850	3,760	310	17,290	6,210	890	2,670	3,630
Agricultural scientists	9,170	6,940	4,900	920	1,070	50	80	1,040	140	440	540
Biological scientists	55,590	46,320	18,080	25,390	2,590	260	150	4,410	550	1,720	2,450
Forestry and conservation scientists	1,230	850	710	90	S	S	S	160	70	60	80
Postsecondary teachers, life and related sciences	31,550	12,760	3,260	9,440	60	S	17,030	600	140	460	560
Physical and related scientists	72,240	43,860	21,960	14,550	6,010	1,340	17,380	4,870	1,650	1,330	3,160
Chemists, except biochemistry	24,560	20,030	11,630	3,290	4,540	580	70	2,400	230	230	1,590
Earth scientists	8,830	6,620	3,770	2,380	280	190	S	740	600	260	600
Physics and astronomers	13,280	10,370	5,060	3,770	1,010	540	S	1,100	700	580	510
Other physical scientists	1,280	800	540	100	150	S	S	130	S	140	190
Postsecondary teachers, physical and related sciences	24,290	6,030	950	5,020	S	S	17,280	500	90	110	270
Social scientists	43,370	14,390	8,830	4,890	470	200	23,300	2,650	510	950	1,570
Economists	6,640	4,390	3,490	560	230	110	S	820	320	460	610
Political scientists	870	430	300	130	S	S	S	180	S	160	70
Sociologists and anthropologists	3,310	2,180	1,540	540	70	S	100	490	80	150	300
S&T historians and other social scientists	1,840	1,390	1,100	170	100	S	S	200	80	60	110
Postsecondary teachers, social and related sciences	30,710	6,000	2,400	3,490	80	S	23,120	960	S	120	480
Psychologists	60,630	9,250	5,470	2,930	590	250	11,550	3,110	110	34,930	1,690
Psychologists	45,120	5,920	4,150	1,030	490	250	490	2,580	90	34,580	1,460
Postsecondary teachers, psychology	15,510	3,330	1,320	1,910	100	S	11,060	530	S	350	220

See explanatory information and SOURCE at end of table.

Table 23. Employed doctoral scientists and engineers, by occupation and primary work activity: 1997

Occupation*	Total	Research and development					Teaching	Management, sales, and administration	Computer applications	Professional services	Other activities
		Total	Applied research	Basic research	Development	Design					
Engineers	69,740	41,850	20,320	3,380	11,220	6,930	12,000	6,340	4,340	1,830	3,370
Aerospace/aeronautical engineers	3,990	2,990	1,400	280	570	730	S	390	450	60	110
Chemical engineers	6,730	5,490	2,640	170	1,810	870	S	640	250	180	180
Civil and architectural engineers	3,350	1,780	750	S	170	850	60	390	240	460	430
Electric and related engineers	13,500	9,590	3,910	400	3,810	1,470	S	1,450	1,710	60	660
Industrial engineers	1,220	740	320	S	180	230	S	210	140	50	70
Mechanical engineers	7,820	5,940	2,810	340	1,490	1,300	S	550	760	230	340
Other engineers	16,000	11,130	5,800	820	3,040	1,470	S	2,010	780	760	1,320
Postsecondary teachers, engineering	17,140	4,200	2,700	1,340	150	S	11,900	710	S	S	260
Non-S&E occupations	129,570	19,910	9,950	3,570	4,990	1,390	17,480	58,160	4,510	19,140	10,360
Managers, administrators, etc.	71,010	10,790	4,950	1,310	3,510	1,010	1,300	49,940	1,130	3,770	4,080
Health and related occupations	14,440	2,150	1,260	640	140	110	290	980	170	10,200	650
Teachers, except S&E postsecondary teachers	20,780	3,560	2,090	1,310	140	S	15,500	810	90	380	430
Social services and related occupations	2,020	210	110	S	70	S	250	290	60	860	360
Technologists, etc.	4,570	1,200	670	120	270	140	S	420	2,590	110	250
Sales and marketing occupations	5,230	400	180	S	200	S	S	3,660	S	750	380
Other non-S&E occupations	11,530	1,620	700	160	660	100	130	2,050	440	3,060	4,230

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 24. Employed doctoral scientists and engineers, by employer location and broad field of doctorate: 1997

Employer location	Total	Sciences	Computer and information sciences	Mathematical sciences	Biological and agricultural sciences	Health sciences	Physical and related sciences	Social sciences	Psychology	Engineering
Total	518,440	319,130	25,950	19,400	97,550	72,240	43,370	60,630	69,740	129,570
	[Percentage distribution]									
New England	7.8	8.0	7.0	7.9	7.6	7.2	8.4	8.7	7.9	6.9
Connecticut	1.7	1.8	1.9	0.9	1.9	1.4	1.9	1.6	2.1	1.1
Maine	0.4	0.4	S	0.3	0.4	0.6	0.3	0.7	0.5	0.3
Massachusetts	4.5	4.5	4.3	5.1	4.4	4.1	4.9	4.9	3.9	4.3
New Hampshire	0.4	0.4	S	0.8	0.2	0.5	0.5	0.4	0.5	0.5
Rhode Island	0.5	0.5	S	0.6	0.4	0.4	0.5	0.6	0.5	0.5
Vermont	0.3	0.4	S	S	0.4	S	0.2	0.6	0.4	0.2
Middle Atlantic	16.3	16.5	19.7	16.9	14.5	16.9	16.6	16.3	19.4	15.1
New Jersey	3.9	3.9	9.4	4.3	3.1	3.2	5.6	2.7	3.2	4.3
New York	7.7	8.0	8.1	8.7	6.8	8.1	6.5	8.6	11.3	6.2
Pennsylvania	4.6	4.6	2.3	3.8	4.6	5.6	4.5	4.9	4.9	4.5
East North Central	13.7	13.4	11.2	14.6	13.2	15.7	12.7	14.1	13.4	15.1
Illinois	4.1	4.1	7.9	4.0	4.0	4.7	4.0	4.6	3.7	3.9
Indiana	1.5	1.5	1.5	1.6	1.4	2.1	1.2	1.8	1.6	1.3
Michigan	2.9	2.6	0.8	3.2	2.7	3.1	2.6	2.4	2.7	4.2
Ohio	3.6	3.4	1.0	4.3	3.3	3.9	3.8	3.0	3.5	4.4
Wisconsin	1.6	1.7	S	1.5	1.8	1.9	1.2	2.2	1.8	1.4
West North Central	6.3	6.7	5.5	6.6	8.0	6.9	5.0	7.3	6.3	4.5
Iowa	0.8	0.8	1.5	1.1	0.9	0.5	0.5	1.4	0.6	0.6
Kansas	0.7	0.8	1.0	1.0	1.0	0.9	0.4	0.8	0.7	0.5
Minnesota	1.9	2.0	1.6	1.4	2.1	2.1	1.9	1.9	2.1	1.5
Missouri	1.8	1.9	1.3	2.2	2.3	1.7	1.7	1.8	1.9	1.3
Nebraska	0.6	0.6	S	0.6	0.9	0.8	0.3	0.9	0.4	0.3
North Dakota	0.3	0.3	S	S	0.4	0.4	0.1	0.2	0.3	0.2
South Dakota	0.2	0.2	S	S	0.3	0.5	0.1	0.2	0.2	0.1
South Atlantic	18.4	19.0	14.3	20.1	19.3	21.2	18.0	21.6	17.3	15.6
Delaware	0.7	0.7	S	S	0.7	1.1	1.3	0.5	0.2	0.8
District of Columbia	2.3	2.5	1.5	1.9	1.4	2.1	1.6	7.4	1.6	1.0
Florida	2.6	2.5	1.9	1.6	2.2	3.2	1.9	2.6	4.0	2.8
Georgia	1.9	2.0	2.0	2.1	2.1	2.7	1.6	2.2	1.9	1.5
Maryland	4.1	4.2	3.7	4.8	5.8	4.5	4.1	2.5	3.3	3.4
North Carolina	2.6	2.8	2.8	3.0	3.6	3.8	2.5	1.8	2.6	1.9
South Carolina	0.9	1.0	S	1.0	0.9	1.7	0.9	1.3	0.6	0.8
Virginia	2.9	2.9	2.1	5.3	2.1	1.8	3.5	3.0	2.9	3.1
West Virginia	0.4	0.4	S	0.4	0.4	0.3	0.5	0.4	0.2	0.4
East South Central	4.3	4.4	2.2	5.7	5.0	5.8	3.5	4.3	4.2	3.8
Alabama	1.3	1.2	S	2.0	1.6	2.2	0.8	1.2	1.0	1.4
Kentucky	0.8	0.9	0.8	1.8	0.8	0.9	0.7	1.1	0.8	0.3
Mississippi	0.6	0.6	S	0.4	0.9	1.3	0.3	0.6	0.3	0.6
Tennessee	1.6	1.7	0.7	1.5	1.6	1.3	1.7	1.5	2.1	1.5

See explanatory information and SOURCE at end of table.

Table 24. Employed doctoral scientists and engineers, by employer location and broad field of doctorate: 1997

Employer location	Total	Sciences	Computer and information sciences	Mathematical sciences	Biological and agricultural sciences	Health sciences	Physical and related sciences	Social sciences	Psychology	Engineering
	[Percentage distribution]									
West South Central	7.9	7.6	10.3	5.8	8.4	8.0	8.3	6.3	6.8	9.2
Arkansas	0.4	0.5	S	S	0.6	S	0.5	0.5	0.4	0.3
Louisiana	1.0	1.1	2.1	0.7	1.4	1.1	1.1	0.9	0.7	0.8
Oklahoma	0.9	0.8	S	0.2	1.0	1.1	0.7	0.9	0.8	1.1
Texas	5.5	5.2	7.3	4.8	5.3	5.5	6.0	4.1	4.9	6.9
Mountain	6.8	6.5	4.6	6.5	6.2	4.8	8.4	5.8	5.9	8.3
Arizona	1.2	1.1	S	0.9	1.0	1.1	1.0	1.3	1.2	1.8
Colorado	2.1	2.1	1.7	1.5	2.1	1.6	2.9	1.5	2.1	1.8
Idaho	0.4	0.4	S	0.3	0.5	S	0.3	0.4	0.3	0.4
Montana	0.3	0.4	S	0.5	0.6	S	0.3	0.2	0.4	0.1
New Mexico	0.3	0.3	0.6	S	0.3	S	0.3	0.4	0.4	0.4
Nevada	1.4	1.3	0.8	S	0.8	0.9	2.6	0.7	0.7	2.3
Utah	0.9	0.8	0.8	1.0	0.9	0.5	0.7	1.2	0.7	1.4
Wyoming	0.2	0.2	S	S	0.1	S	0.3	0.2	0.2	0.1
Pacific	18.1	17.4	24.9	15.6	17.3	13.2	18.9	15.2	18.6	21.1
Alaska	0.2	0.2	S	S	0.2	S	0.2	0.3	0.2	0.2
California	13.6	12.9	20.4	12.1	11.7	8.5	15.2	10.4	14.3	17.1
Hawaii	0.5	0.5	S	0.4	0.7	0.6	0.4	0.6	0.4	0.2
Oregon	1.2	1.2	2.8	1.0	1.6	1.3	0.8	1.2	1.0	1.1
Washington	2.6	2.6	1.5	2.0	3.0	2.7	2.3	2.6	2.7	2.4
U.S. territories and other areas	0.4	0.4	S	0.5	0.4	0.4	0.3	0.4	0.3	0.3

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
Since the SDR sample design does not include geography, the reliability of estimates in some states may be poor due to a small sample size.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 25. Employed doctoral scientists and engineers, by employer location and broad occupation: 1997

Employer location	Total	Scientists	Computer and information scientists	Mathematical scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Psychologists	Engineers	Non-S&E occupations
Total	518,440	319,130	25,950	19,400	97,550	72,240	43,370	60,630	69,740	129,570
	[Percentage distribution]									
New England	7.8	8.2	9.4	7.3	8.2	7.7	9.1	8.0	6.7	7.5
Connecticut	1.7	1.7	1.0	1.0	1.8	1.8	1.4	2.2	0.8	2.1
Maine	0.4	0.5	0.2	0.3	0.5	0.4	0.8	0.5	0.3	0.4
Massachusetts	4.5	4.7	6.4	4.1	4.9	4.4	5.3	3.9	4.4	4.0
New Hampshire	0.4	0.5	1.1	0.8	0.2	0.4	0.5	0.5	0.4	0.3
Rhode Island	0.5	0.5	0.5	0.9	0.5	0.5	0.6	0.5	0.5	0.4
Vermont	0.3	0.3	0.3	S	0.4	0.2	0.6	0.4	0.3	0.3
Middle Atlantic	16.3	16.5	20.2	16.5	14.5	15.9	16.4	19.0	14.7	16.6
New Jersey	3.9	3.6	9.1	3.5	2.8	4.4	2.2	2.9	4.6	4.3
New York	7.7	8.1	7.8	8.3	6.9	6.7	8.8	11.1	5.4	8.1
Pennsylvania	4.6	4.8	3.2	4.8	4.8	4.8	5.4	4.9	4.6	4.2
East North Central	13.7	13.3	10.7	15.1	13.1	13.0	14.6	13.4	15.9	13.6
Illinois	4.1	4.0	5.4	4.0	4.0	3.7	4.5	3.5	3.8	4.5
Indiana	1.5	1.5	0.7	1.7	1.4	1.4	2.2	1.7	1.3	1.4
Michigan	2.9	2.7	1.9	4.0	2.8	2.5	2.5	2.8	4.7	2.4
Ohio	3.6	3.4	1.9	4.2	3.2	3.9	3.3	3.5	4.9	3.5
Wisconsin	1.6	1.6	0.7	1.2	1.7	1.4	2.1	1.9	1.3	1.8
West North Central	6.3	6.7	3.9	7.3	8.0	5.7	7.6	6.4	4.7	6.0
Iowa	0.8	0.9	0.8	1.2	1.0	0.7	1.4	0.6	0.6	0.6
Kansas	0.7	0.8	0.7	0.9	1.1	0.4	0.8	0.7	0.6	0.7
Minnesota	1.9	1.9	1.0	2.0	2.0	1.9	2.2	2.0	1.6	2.0
Missouri	1.8	2.0	1.0	2.2	2.2	1.9	2.0	1.9	1.3	1.8
Nebraska	0.6	0.7	S	0.6	1.1	0.5	0.7	0.5	0.3	0.5
North Dakota	0.3	0.3	S	0.3	0.4	0.2	0.3	0.4	0.2	0.1
South Dakota	0.2	0.2	0.2	S	0.2	0.1	0.2	0.3	S	0.2
South Atlantic	18.4	19.0	16.4	21.2	19.7	18.7	21.5	16.8	14.6	19.1
Delaware	0.7	0.7	0.8	S	0.8	1.3	0.4	0.2	0.8	0.7
District of Columbia	2.3	2.1	1.1	2.1	1.4	1.5	7.0	1.1	0.7	3.5
Florida	2.6	2.4	1.5	1.5	2.4	1.7	2.3	3.9	2.7	2.9
Georgia	1.9	2.1	1.6	3.2	2.0	2.0	2.6	1.9	1.4	1.7
Maryland	4.1	4.5	3.6	5.1	6.2	4.7	2.4	3.3	3.2	3.4
North Carolina	2.6	2.9	2.5	3.2	3.8	2.6	1.9	2.4	1.6	2.7
South Carolina	0.9	1.0	S	1.3	1.0	1.0	1.7	0.7	0.9	0.8
Virginia	2.9	2.9	5.2	4.1	1.8	3.2	2.7	3.0	2.8	3.2
West Virginia	0.4	0.4	S	0.7	0.4	0.6	0.5	0.2	0.4	0.2
East South Central	4.3	4.5	2.7	6.3	5.0	3.8	5.3	4.2	3.9	3.9
Alabama	1.3	1.3	0.9	2.2	1.5	0.8	1.7	1.2	1.2	1.2
Kentucky	0.8	0.9	0.9	2.0	0.8	0.7	1.1	0.7	0.2	0.9
Mississippi	0.6	0.6	0.2	0.6	0.9	0.4	0.7	0.3	0.6	0.6
Tennessee	1.6	1.8	0.7	1.6	1.8	1.9	1.8	2.0	1.9	1.2

See explanatory information and SOURCE at end of table.

Table 25. Employed doctoral scientists and engineers, by employer location and broad occupation: 1997

Employer location	Total	Scientists	Computer and information scientists	Mathematical scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Psychologists	Engineers	Non-S&E occupations
	[Percentage distribution]									
West South Central	7.9	7.6	8.0	6.8	8.2	8.3	6.1	7.0	9.9	7.5
Arkansas	0.4	0.5	S	S	0.6	0.5	0.6	0.4	0.3	0.4
Louisiana	1.0	1.1	0.8	1.2	1.5	1.1	1.0	0.8	0.9	0.9
Oklahoma	0.9	0.8	0.4	0.4	1.0	0.8	1.0	0.9	1.3	0.8
Texas	5.5	5.2	6.6	4.9	5.2	5.9	3.5	4.9	7.4	5.3
Mountain	6.8	6.6	5.3	6.7	5.4	9.7	5.1	6.2	8.5	6.6
Arizona	1.2	1.0	0.7	1.3	0.8	1.3	1.0	1.3	1.8	1.3
Colorado	2.1	2.2	2.1	2.0	1.9	3.3	1.5	2.1	1.8	1.8
Idaho	0.4	0.4	0.3	S	0.4	0.4	0.4	0.3	0.5	0.4
Montana	0.3	0.4	S	0.5	0.5	0.3	0.3	0.4	0.1	0.3
New Mexico	0.3	0.3	0.4	1.6	0.2	0.4	0.4	0.4	0.4	0.2
Nevada	1.4	1.3	0.8	S	0.6	3.0	0.5	0.7	2.4	1.4
Utah	0.9	0.8	0.8	0.9	0.9	0.5	0.9	0.7	1.5	1.0
Wyoming	0.2	0.2	S	S	0.1	0.4	0.2	0.2	0.2	0.1
Pacific	18.1	17.2	23.4	12.3	17.5	16.8	13.7	18.8	21.0	18.6
Alaska	0.2	0.2	S	S	0.3	0.3	0.2	0.2	0.3	0.2
California	13.6	12.8	18.2	8.3	11.9	13.5	9.5	14.9	17.0	13.8
Hawaii	0.5	0.5	S	0.4	0.8	0.4	0.6	0.4	0.3	0.5
Oregon	1.2	1.2	1.6	1.7	1.6	0.7	0.8	1.0	1.2	1.3
Washington	2.6	2.5	3.4	1.7	3.0	1.9	2.5	2.3	2.2	2.9
U.S. territories and other areas	0.4	0.4	S	0.6	0.4	0.4	0.5	0.2	0.3	0.4

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
Since the SDR sample design does not include geography, the reliability of estimates in some states may be poor due to a small sample size.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 26. Employed doctoral scientists and engineers, by field of doctorate, race/ethnicity, and sex: 1997

Field of doctorate	Total			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	518,440	399,110	119,330	424,160	325,390	98,780	11,850	7,680	4,170
Sciences	429,820	315,680	114,140	364,140	268,840	95,290	10,570	6,520	4,060
Computer and mathematical sciences	32,400	27,850	4,560	24,930	21,460	3,470	520	430	90
Computer/information sciences	8,000	6,660	1,350	5,350	4,340	1,020	120	90	S
Mathematical sciences	24,400	21,190	3,210	19,580	17,120	2,460	390	330	60
Biological and agricultural sciences	124,600	92,400	32,200	105,530	79,590	25,940	2,310	1,550	760
Agricultural/ food sciences	15,670	13,370	2,310	13,220	11,440	1,780	270	250	S
Biological sciences	104,630	75,170	29,460	88,470	64,660	23,810	1,960	1,240	730
Environmental life sciences	4,300	3,870	430	3,840	3,490	360	70	70	S
Health sciences	17,180	8,150	9,030	14,350	6,670	7,690	740	290	440
Physical and related sciences	105,250	92,680	12,570	86,230	76,930	9,300	1,510	1,370	140
Chemistry except biochemistry	54,220	45,940	8,280	43,530	37,490	6,050	1,040	920	120
Earth/atmos/ocean sciences	15,110	13,140	1,970	13,500	11,750	1,740	S	S	S
Physics and astronomy	35,920	33,600	2,330	29,200	27,690	1,510	430	410	S
Social sciences	71,070	50,530	20,540	60,680	43,120	17,560	2,780	1,830	950
Economics	20,080	16,900	3,180	16,720	14,190	2,530	530	440	80
Political and related sciences	15,820	12,490	3,330	13,890	11,010	2,880	800	570	230
Sociology	13,230	8,220	5,010	11,580	7,250	4,330	690	450	240
Other social sciences	21,940	12,920	9,030	18,490	10,660	7,830	770	370	400
Psychology	79,320	44,080	35,240	72,420	41,080	31,330	2,730	1,050	1,680
Engineering	88,620	83,430	5,190	60,030	56,550	3,480	1,280	1,170	110
Aerospace/aeronautical engineering	3,720	3,670	50	2,860	2,820	S	S	S	S
Chemical engineering	12,280	11,610	670	8,670	8,200	470	140	110	S
Civil/architectural engineering	8,190	7,740	450	5,420	5,100	320	220	210	S
Electrical/computer engineering	23,750	22,610	1,140	15,540	14,880	660	320	290	S
Materials/metallurgical engineering	8,510	7,680	830	5,510	4,980	530	70	50	S
Mechanical engineering	11,080	10,710	370	7,080	6,920	160	150	150	S
Other engineering	21,100	19,420	1,680	14,950	13,650	1,300	350	320	S

See explanatory information and SOURCE at end of table.

Table 26. Employed doctoral scientists and engineers, by field of doctorate, race/ethnicity, and sex: 1997

Field of doctorate	Asian or Pacific Islander			Hispanic			American Indian/Alaskan Native		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	68,860	56,320	12,540	11,790	8,420	3,380	1,770	1,300	470
Sciences	43,360	32,250	11,110	10,110	6,890	3,220	1,640	1,180	460
Computer and mathematical sciences	6,210	5,340	870	720	590	120	S	S	S
Computer/information sciences	2,330	2,070	260	190	160	S	S	S	S
Mathematical sciences	3,880	3,270	610	520	440	90	S	S	S
Biological and agricultural sciences	13,900	9,300	4,590	2,520	1,710	800	350	240	110
Agricultural/ food sciences	1,780	1,330	450	380	320	50	S	S	S
Biological sciences	11,830	7,740	4,100	2,080	1,350	730	290	190	100
Environmental life sciences	280	230	S	60	S	S	S	S	S
Health sciences	1,570	960	610	420	190	230	100	S	70
Physical and related sciences	14,920	12,140	2,780	2,270	1,930	340	330	310	S
Chemistry except biochemistry	8,070	6,240	1,840	1,360	1,100	270	210	200	S
Earth/atmos/ocean sciences	1,250	1,060	190	300	270	S	S	S	S
Physics and astronomy	5,600	4,850	750	610	560	50	90	90	S
Social sciences	5,250	3,860	1,390	1,910	1,330	590	440	390	50
Economics	2,320	1,820	500	460	400	60	50	50	S
Political and related sciences	710	580	130	360	270	90	50	50	S
Sociology	550	290	260	370	210	160	50	S	S
Other social sciences	1,670	1,180	500	730	460	280	290	260	S
Psychology	1,510	640	870	2,280	1,140	1,140	390	180	210
Engineering	25,510	24,080	1,430	1,680	1,530	160	130	120	S
Aerospace/aeronautical engineering	750	740	S	70	70	S	S	S	S
Chemical engineering	3,270	3,140	130	200	160	S	S	S	S
Civil/architectural engineering	2,350	2,230	110	190	190	S	S	S	S
Electrical/computer engineering	7,330	6,910	420	510	490	S	S	S	S
Materials/metallurgical engineering	2,740	2,470	260	190	160	S	S	S	S
Mechanical engineering	3,670	3,470	200	170	160	S	S	S	S
Other engineering	5,400	5,100	290	360	310	60	S	S	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 27. Employed doctoral scientists and engineers, by occupation, race/ethnicity, and sex: 1997

Occupation	Total			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	518,440	399,110	119,330	424,000	325,290	98,710	11,850	7,680	4,170
Scientists	319,130	237,030	82,100	265,260	197,900	67,360	7,080	4,520	2,560
Computer and mathematical scientists	45,350	38,830	6,520	33,140	28,400	4,740	780	650	120
Computer/information scientists	20,820	18,430	2,390	14,190	12,550	1,640	200	180	S
Mathematical scientists	5,920	4,660	1,260	4,620	3,660	960	140	120	S
Postsecondary teachers, computer and mathematical sciences	18,610	15,740	2,870	14,320	12,180	2,150	440	360	80
Life and related scientists	97,550	71,350	26,190	80,800	60,340	20,460	1,630	1,100	530
Agricultural scientists	9,170	7,790	1,380	7,850	6,730	1,120	90	80	S
Biological scientists	55,590	38,340	17,250	43,750	31,060	12,690	780	490	290
Forestry and conservation scientists	1,230	1,080	150	1,090	950	140	S	S	S
Postsecondary teachers, life and related sciences	31,550	24,140	7,410	28,110	21,600	6,510	710	490	230
Physical and related scientists	72,240	63,120	9,130	59,150	52,380	6,770	1,160	1,020	140
Chemists, except biochemistry	24,560	20,860	3,700	18,280	15,830	2,460	530	480	60
Earth scientists	8,830	7,950	880	7,530	6,800	720	80	80	S
Physics and astronomers	13,280	12,360	920	11,120	10,540	580	100	90	S
Other physical scientists	1,280	1,150	130	1,100	980	120	S	S	S
Postsecondary teachers, physical and related sciences	24,290	20,790	3,500	21,120	18,230	2,900	430	360	70
Social scientists	43,370	31,560	11,810	36,550	26,560	9,990	1,700	1,170	540
Economists	6,640	5,110	1,530	5,410	4,140	1,260	50	S	S
Political scientists	870	720	150	740	610	130	S	S	S
Sociologists and anthropologists	3,310	1,670	1,640	2,970	1,480	1,480	150	60	90
S&T historians and other social scientists	1,840	910	930	1,620	860	770	S	S	S
Postsecondary teachers, social and related sciences	30,710	23,150	7,560	25,820	19,470	6,350	1,430	1,040	390
Psychologists	60,630	32,180	28,450	55,620	30,220	25,400	1,820	580	1,240
Psychologists	45,120	22,680	22,440	41,510	21,340	20,170	1,340	420	920
Postsecondary teachers, psychology	15,510	9,500	6,010	14,110	8,890	5,220	480	160	320
Engineers	69,740	65,110	4,630	47,980	44,700	3,280	930	840	100
Aerospace/aeronautical engineers	3,990	3,750	240	3,110	2,910	200	S	S	S
Chemical engineers	6,730	6,210	520	4,580	4,240	340	S	S	S
Civil and architectural engineers	3,350	3,120	230	1,910	1,750	160	70	70	S
Electric and related engineers	13,500	12,820	680	8,710	8,390	320	150	130	S
Industrial engineers	1,220	1,010	210	800	640	160	S	S	S
Mechanical engineers	7,820	7,600	220	4,700	4,620	80	90	90	S
Other engineers	16,000	14,620	1,390	11,110	10,030	1,090	120	110	S
Postsecondary teachers, engineering	17,140	16,000	1,140	13,060	12,120	950	410	370	S
Non-S&E occupations	129,570	96,970	32,590	110,770	82,690	28,070	3,840	2,330	1,510
Managers, administrators, etc	71,010	58,410	12,600	61,170	50,180	11,000	2,070	1,420	660
Health and related occupations	14,440	9,910	4,530	11,870	8,160	3,710	450	230	220
Teachers, except S&E postsecondary teachers	20,780	10,990	9,790	17,710	9,250	8,460	810	380	430
Social services and related occupations	2,020	1,250	760	1,760	1,090	680	110	70	S
Technologists, etc	4,570	4,180	380	3,580	3,310	270	70	70	S
Sales and marketing occupations	5,230	4,390	840	4,310	3,610	700	60	S	S
Other non-S&E occupations	11,530	7,840	3,690	10,370	7,110	3,260	270	120	150

See explanatory information and SOURCE at end of table.

Table 27. Employed doctoral scientists and engineers, by occupation, race/ethnicity, and sex: 1997

Occupation	Asian or Pacific Islander			Hispanic			American Indian/Alaskan Native		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	68,860	56,320	12,540	11,790	8,420	3,380	1,770	1,300	470
Scientists	37,740	28,420	9,310	7,720	5,280	2,450	1,190	830	360
Computer and mathematical scientists	10,290	8,810	1,480	1,030	860	170	110	110	S
Computer/information scientists	5,950	5,270	680	400	350	50	80	80	S
Mathematical scientists	1,010	760	250	150	110	S	S	S	S
Postsecondary teachers, computer and mathematical sciences	3,330	2,770	560	480	400	90	S	S	S
Life and related scientists	12,840	8,450	4,400	1,990	1,300	690	270	170	110
Agricultural scientists	1,010	820	190	200	140	60	S	S	S
Biological scientists	9,670	5,900	3,770	1,190	790	400	190	100	90
Forestry and conservation scientists	70	60	S	S	S	S	S	S	S
Postsecondary teachers, life and related sciences	2,090	1,660	430	590	360	230	S	S	S
Physical and related scientists	9,960	8,080	1,890	1,740	1,440	300	200	180	S
Chemists, except biochemistry	5,220	4,120	1,090	510	420	90	S	S	S
Earth scientists	920	800	120	260	230	S	50	50	S
Physics and astronomers	1,840	1,550	300	200	180	S	S	S	S
Other physical scientists	120	110	S	S	S	S	S	S	S
Postsecondary teachers, physical and related sciences	1,870	1,500	370	720	570	150	130	110	S
Social scientists	3,500	2,660	840	1,320	920	400	250	210	S
Economists	950	730	220	200	170	S	S	S	S
Political scientists	80	60	S	S	S	S	S	S	S
Sociologists and anthropologists	120	80	S	70	S	S	S	S	S
S&T historians and other social scientists	140	60	90	S	S	S	S	S	S
Postsecondary teachers, social and related sciences	2,220	1,740	470	990	680	310	210	180	S
Psychologists	1,150	440	720	1,650	770	880	360	160	190
Psychologists	790	250	540	1,150	550	600	300	120	180
Postsecondary teachers, psychology	370	190	180	500	220	280	60	S	S
Engineers	19,300	18,160	1,140	1,400	1,290	110	120	120	S
Aerospace/aeronautical engineers	780	740	S	50	50	S	S	S	S
Chemical engineers	1,990	1,810	170	110	110	S	S	S	S
Civil and architectural engineers	1,280	1,210	70	100	90	S	S	S	S
Electric and related engineers	4,400	4,070	330	220	220	S	S	S	S
Industrial engineers	360	320	S	60	S	S	S	S	S
Mechanical engineers	2,930	2,800	130	90	80	S	S	S	S
Other engineers	4,450	4,190	260	270	240	S	50	S	S
Postsecondary teachers, engineering	3,120	3,020	100	510	460	60	S	S	S
Non-S&E occupations	11,820	9,740	2,080	2,670	1,850	820	460	360	100
Managers, administrators, etc	6,070	5,420	650	1,450	1,190	260	250	210	S
Health and related occupations	1,780	1,310	470	300	170	130	S	S	S
Teachers, except S&E postsecondary teachers	1,580	1,030	560	530	240	290	140	90	50
Social services and related occupations	70	70	S	70	S	S	S	S	S
Technologists, etc	890	790	100	S	S	S	S	S	S
Sales and marketing occupations	740	680	60	120	60	60	S	S	S
Other non-S&E occupations	700	460	240	180	140	S	S	S	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 28. Employed doctoral scientists and engineers, by demographic characteristics and broad field of doctorate 1997

Characteristics	Total	Sciences	Computer and information sciences	Mathematical sciences	Biological and agricultural sciences	Health sciences	Physical and related sciences	Social sciences	Psychology	Engineering
Total	518,440	429,820	8,000	24,400	124,600	17,180	105,250	71,070	79,320	88,620
	[Percentage distribution]									
Sex:										
Male	77.0	73.4	83.2	86.8	74.2	47.4	88.1	71.1	55.6	94.1
Female	23.0	26.6	16.8	13.2	25.8	52.6	11.9	28.9	44.4	5.9
Race/ethnicity:										
White	81.8	84.7	66.9	80.2	84.7	83.5	81.9	85.3	91.3	67.7
Black	2.3	2.5	1.5	1.6	1.9	4.3	1.4	3.9	3.4	1.4
Asian or Pacific Islander	13.3	10.1	29.1	15.9	11.2	9.2	14.2	7.4	1.9	28.8
Hispanic	2.3	2.4	2.4	2.1	2.0	2.4	2.2	2.7	2.9	1.9
American Indian/Alaskan Native	0.3	0.4	S	S	0.3	0.6	0.3	0.6	0.5	0.1
Age:										
Under 35	12.4	11.5	26.3	12.5	12.9	7.5	14.0	7.5	8.7	16.5
35 to 39	14.2	13.4	27.8	11.2	14.6	11.1	15.1	10.5	11.4	18.3
40 to 44	16.7	17.0	21.0	13.0	19.6	19.7	14.7	14.9	18.3	15.0
45 to 49	17.1	18.1	16.2	15.3	17.7	23.5	13.7	20.2	22.5	12.5
50 to 54	17.2	17.7	7.5	21.8	15.9	18.9	16.4	20.4	19.1	15.2
55 to 59	12.1	12.1	0.8	15.9	10.2	11.2	14.4	14.7	9.9	12.4
60 to 64	5.9	5.7	S	6.6	5.4	5.2	6.3	6.5	5.1	6.8
65 to 75	4.3	4.5	S	3.5	3.9	2.8	5.4	5.2	5.0	3.3
Citizenship status:										
U.S. total	90.6	92.4	72.0	87.9	92.5	93.6	90.5	92.2	98.1	82.0
U.S. native	79.2	83.3	58.9	75.0	83.4	84.3	78.6	83.3	94.0	59.4
U.S. naturalized	11.4	9.1	13.1	12.9	9.1	9.3	11.9	9.0	4.1	22.6
Non-U.S. total	9.4	7.6	28.0	12.1	7.5	6.4	9.5	7.8	1.9	18.0
Non-U.S., permanent resident	7.7	6.3	24.6	10.0	6.1	5.1	8.1	6.1	1.7	14.5
Non-U.S., temporary resident	1.7	1.3	3.4	2.1	1.4	1.3	1.4	1.6	0.3	3.5
Year of doctorate:										
1995-96 graduates	9.2	8.7	20.2	7.5	9.0	14.2	7.3	8.7	8.1	11.5
1993-94 graduates	8.0	7.7	21.2	6.0	8.0	11.3	6.8	7.1	7.6	9.4
1990-92 graduates	11.0	10.6	20.7	9.8	11.0	14.7	9.8	9.1	10.8	12.8
1985-89 graduates	15.9	15.9	23.2	11.8	16.2	19.4	14.9	15.0	17.3	15.9
1980-84 graduates	14.5	15.3	11.8	11.8	16.0	16.3	12.5	16.5	18.1	10.8
1970-79 graduates	27.7	28.3	2.8	33.5	27.0	19.6	28.9	33.2	27.7	24.8
1960-69 graduates	11.7	11.4	S	18.4	11.1	3.6	16.2	8.9	8.2	13.2
Pre-1960 graduates	2.1	2.2	S	1.2	1.8	0.8	3.6	1.5	2.2	1.6
Place of birth:										
U.S.	78.4	82.4	57.1	73.9	82.7	83.5	77.8	82.5	93.0	58.7
Europe	3.8	3.7	4.9	5.8	3.1	2.9	4.2	4.6	2.6	4.1
Asia	14.2	10.4	33.0	16.8	11.2	9.8	14.6	8.3	1.7	32.5
North America	0.9	1.0	1.7	0.7	1.0	0.7	0.9	1.1	1.2	0.6
Central America	0.3	0.3	S	0.3	0.3	0.3	0.5	0.2	0.3	0.3
Caribbean	0.4	0.4	S	0.2	0.3	S	0.4	0.5	0.5	0.5
South America	0.7	0.6	1.6	0.7	0.6	0.6	0.7	0.8	0.4	0.9
Africa	1.1	0.9	0.9	1.2	0.8	1.7	0.9	1.7	0.3	2.2
Oceania	0.1	0.1	S	0.3	0.1	0.3	S	0.3	0.1	0.1

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 29. Employed doctoral scientists and engineers, by demographic characteristics and broad occupation: 1997

Characteristics	Total	Scientists	Computer and information scientists	Mathematical scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Psychologists	Engineers	Non-S&E occupations
Total	518,440	319,130	25,950	19,400	97,550	72,240	43,370	60,630	69,740	129,570
	[Percentage distribution]									
Sex:										
Male	77.0	74.3	87.0	83.7	73.1	87.4	72.8	53.1	93.4	74.8
Female	23.0	25.7	13.0	16.3	26.9	12.6	27.2	46.9	6.6	25.2
Race/ethnicity:										
White	81.8	83.1	68.7	79.0	82.8	81.9	84.3	91.7	68.8	85.5
Black	2.3	2.2	1.5	2.0	1.7	1.6	3.9	3.0	1.3	3.0
Asian or Pacific Islander	13.3	11.8	27.6	16.2	13.2	13.8	8.1	1.9	27.7	9.1
Hispanic	2.3	2.4	2.0	2.7	2.0	2.4	3.0	2.7	2.0	2.1
American Indian/Alaskan Native	0.3	0.4	0.3	0.2	0.3	0.3	0.6	0.6	0.2	0.4
Age:										
Under 35	12.4	14.0	18.6	14.7	15.5	15.9	10.1	9.7	17.4	5.8
35 to 39	14.2	15.4	19.0	13.9	17.0	16.7	12.5	12.4	18.7	8.8
40 to 44	16.7	17.5	16.6	14.8	19.6	15.9	16.5	18.0	15.4	15.4
45 to 49	17.1	16.9	15.8	16.0	16.3	13.5	18.4	21.7	12.2	20.4
50 to 54	17.2	15.6	17.4	16.4	13.9	13.7	17.7	18.3	14.2	22.8
55 to 59	12.1	10.9	8.6	13.8	9.2	12.6	13.6	9.8	11.4	15.5
60 to 64	5.9	5.4	3.1	6.7	4.9	6.3	6.4	4.9	7.0	6.6
65 to 75	4.3	4.3	1.0	3.8	3.6	5.4	4.9	5.3	3.7	4.7
Citizenship status:										
U.S. total	90.6	90.6	78.7	86.4	90.6	89.5	90.9	97.9	81.8	95.5
U.S. native	79.2	81.1	62.4	73.9	81.2	78.2	81.8	94.0	61.3	84.2
U.S. naturalized	11.4	9.5	16.2	12.6	9.4	11.3	9.1	3.9	20.5	11.3
Non-U.S. total	9.4	9.4	21.3	13.6	9.4	10.5	9.1	2.1	18.2	4.5
Non-U.S., permanent resident	7.7	7.6	17.4	10.8	7.4	8.8	7.1	1.8	14.9	4.0
Non-U.S., temporary resident	1.7	1.8	4.0	2.8	1.9	1.6	2.0	0.3	3.3	0.6
Year of doctorate:										
1995-96 graduates	9.2	10.1	13.1	9.2	11.2	8.6	10.3	8.8	12.3	5.2
1993-94 graduates	8.0	8.8	12.2	7.2	9.6	7.4	8.0	8.6	9.4	5.4
1990-92 graduates	11.0	11.6	14.0	12.0	12.5	10.7	10.2	11.1	13.3	8.2
1985-89 graduates	15.9	16.6	16.2	14.0	16.8	16.7	15.5	17.9	16.2	14.0
1980-84 graduates	14.5	14.8	13.2	13.5	14.8	13.5	15.3	17.0	10.4	16.2
1970-79 graduates	27.7	25.4	23.8	26.1	23.4	24.9	30.4	26.1	23.7	35.4
1960-69 graduates	11.7	10.7	6.9	16.8	9.7	14.8	8.9	8.2	12.8	13.5
Pre-1960 graduates	2.1	2.1	0.6	1.1	2.0	3.4	1.4	2.2	1.8	2.1
Place of birth:										
U.S.	78.4	80.2	61.6	72.8	80.5	77.3	80.9	93.0	60.5	83.5
Europe	3.8	3.9	4.8	5.8	3.5	4.2	4.6	2.6	3.9	3.5
Asia	14.2	12.4	29.8	16.9	13.1	14.7	9.3	1.8	31.2	9.6
North America	0.9	1.0	0.8	0.7	1.0	1.0	1.4	1.1	0.7	0.9
Central America	0.3	0.4	S	0.5	0.3	0.6	0.2	0.4	0.4	0.2
Carribean	0.4	0.4	0.4	S	0.2	0.4	0.5	0.5	0.5	0.5
South America	0.7	0.7	0.7	1.0	0.6	0.6	0.9	0.4	0.7	0.7
Africa	1.1	1.0	1.6	1.9	0.7	1.0	1.9	0.2	2.0	1.1
Oceania	0.1	0.1	S	0.3	0.1	0.1	0.3	S	0.1	0.2

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 30. Employed doctoral scientists and engineers, by demographic characteristics and citizenship status: 1997

Characteristic	Total	U.S. Citizen			Non-U.S. Citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Total	518,440	469,790	410,560	59,230	48,650	39,930	8,720
	[Percentage distribution]						
Sex:							
Male	77.0	76.6	75.8	82.6	80.5	80.5	80.7
Female	23.0	23.4	24.2	17.4	19.5	19.5	19.3
Race/ethnicity:							
White	81.8	87.4	94.5	38.2	27.7	27.6	28.4
Black	2.3	2.1	2.0	3.3	3.7	3.6	4.0
Asian or Pacific Islander	13.3	8.0	1.5	53.3	64.3	64.6	62.7
Hispanic	2.3	2.1	1.6	5.1	4.2	4.1	4.8
American Indian/Alaskan Native	0.3	0.4	0.4	0.1	S	S	S
Age:							
Under 35	12.4	9.8	10.4	6.2	36.8	30.1	67.2
35 to 39	14.2	12.7	12.8	12.0	28.9	31.1	19.0
40 to 44	16.7	16.6	16.5	17.7	17.2	18.8	9.7
45 to 49	17.1	18.2	18.0	19.2	7.1	8.4	1.3
50 to 54	17.2	18.5	18.5	18.3	5.0	5.7	1.8
55 to 59	12.1	13.1	13.1	13.1	2.9	3.4	0.8
60 to 64	5.9	6.4	6.3	7.1	1.3	1.5	S
65 to 75	4.3	4.7	4.4	6.4	0.8	1.0	S
Employer location:							
New England	7.8	7.7	7.7	7.7	9.3	9.2	9.7
Middle Atlantic	16.3	16.0	15.6	19.0	19.2	20.1	15.1
East North Central	13.7	13.5	13.6	13.0	15.4	15.7	14.5
West North Central	6.3	6.4	6.7	4.3	5.2	5.2	5.3
South Atlantic	18.4	18.8	18.8	18.7	14.4	14.0	16.0
East South Central	4.3	4.4	4.7	2.7	2.9	3.1	2.0
West South Central	7.9	7.8	7.9	6.9	8.9	8.5	10.6
Mountain	6.8	7.0	7.4	4.0	5.6	5.9	4.4
Pacific	18.1	18.0	17.3	23.2	18.4	17.9	20.7
U.S. territories and other areas	0.4	0.3	0.3	0.5	0.6	0.3	1.8
Place of birth:							
U.S.	78.4	86.4	98.7	0.7	1.1	0.9	2.1
Europe	3.8	2.7	0.4	18.7	13.8	13.8	13.8
Asia	14.2	8.5	0.5	64.1	69.5	70.1	66.3
North America	0.9	0.6	0.1	4.0	4.2	4.1	4.9
Central America	0.3	0.2	0.1	1.2	1.3	1.2	1.7
Caribbean	0.4	0.3	0.0	2.6	0.9	1.1	S
South America	0.7	0.4	0.1	2.7	3.3	3.2	3.5
Africa	1.1	0.8	0.1	5.6	4.9	4.6	6.1
Oceania	0.1	0.1	0.0	0.4	1.0	0.9	1.5

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 31. Employed doctoral scientists and engineers, by demographic characteristics and sector of employment: 1997

Characteristics	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Total	518,440	233,180	13,650	165,040	25,100	26,330	38,070	15,450	1,620
	[Percentage distribution]								
Sex:									
Male	77.0	74.9	58.5	84.8	63.4	67.0	81.2	69.8	74.2
Female	23.0	25.1	41.5	15.2	36.6	33.0	18.8	30.2	25.8
Race/ethnicity:									
White	81.8	83.2	83.6	76.2	93.0	86.4	86.2	83.8	73.1
Black	2.3	2.8	4.6	1.4	1.1	2.9	2.0	3.6	1.9
Asian or Pacific Islander	13.3	11.0	8.2	20.4	3.5	8.4	9.5	10.0	17.5
Hispanic	2.3	2.7	3.0	1.8	1.9	2.1	2.0	2.0	6.9
American Indian/Alaskan Native	0.3	0.4	0.6	0.2	0.5	0.2	0.3	0.6	S
Age:									
Under 35	12.4	13.3	7.8	14.2	3.3	11.6	9.9	5.3	7.5
35 to 39	14.2	14.2	10.4	16.3	8.2	14.6	11.8	11.0	14.6
40 to 44	16.7	16.3	14.3	17.5	13.2	17.9	16.5	18.9	23.2
45 to 49	17.1	15.6	22.8	16.9	21.4	19.4	18.3	24.7	17.6
50 to 54	17.2	16.4	18.9	16.8	19.3	16.9	21.0	21.4	20.4
55 to 59	12.1	12.8	14.8	10.6	13.5	11.6	13.4	10.9	12.8
60 to 64	5.9	6.8	6.5	4.8	8.0	3.9	6.0	3.7	S
65 to 75	4.3	4.6	4.5	3.0	13.1	4.1	3.0	4.0	3.6
Citizenship status:									
U.S. total	90.6	90.4	95.7	87.5	96.9	93.7	96.6	95.4	67.7
U.S. native	79.2	80.6	85.7	72.5	88.9	85.7	85.5	83.5	55.1
U.S. naturalized	11.4	9.7	10.0	15.0	8.1	8.0	11.1	11.9	12.7
Non-U.S. total	9.4	9.6	4.3	12.5	3.1	6.3	3.4	4.6	32.3
Non-U.S. permanent resident	7.7	7.8	3.8	10.4	3.0	4.9	2.6	3.7	20.3
Non-U.S. temporary resident	1.7	1.8	0.5	2.1	S	1.4	0.8	0.9	11.9
Employer location:									
New England	7.8	8.8	5.2	8.0	7.2	9.3	2.6	6.3	5.3
Middle Atlantic	16.3	15.3	19.7	19.7	18.9	17.5	4.2	15.8	9.9
East North Central	13.7	15.7	11.5	13.5	9.0	15.2	6.9	10.2	S
West North Central	6.3	8.1	4.4	5.1	4.6	5.8	2.2	6.9	S
South Atlantic	18.4	15.9	21.1	14.7	15.5	18.4	50.2	15.0	67.9
East South Central	4.3	6.0	3.2	2.8	2.7	2.9	3.9	2.4	S
West South Central	7.9	8.8	7.9	8.3	6.3	4.3	4.3	7.1	3.5
Mountain	6.8	6.7	6.1	5.9	7.2	7.2	11.1	8.4	S
Pacific	18.1	14.2	20.3	21.6	28.6	19.4	14.5	27.2	8.6
U.S. territories and other areas	0.4	0.5	0.4	0.2	S	S	0.3	0.8	3.6

See explanatory information and SOURCE at end of table.

Table 31. Employed doctoral scientists and engineers, by demographic characteristics and sector of employment: 1997

Characteristics	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
	[Percentage distribution]								
Place of birth:									
U.S.	78.4	79.9	85.2	71.8	88.2	84.3	84.6	81.9	50.8
Europe	3.8	4.1	2.6	3.5	4.3	3.5	3.2	3.4	9.3
Asia	14.2	12.1	8.7	21.4	4.1	8.2	9.7	10.7	24.3
North America	0.9	1.0	0.5	0.9	1.7	1.0	0.5	1.5	S
Central America	0.3	0.4	S	0.2	0.3	0.3	0.2	0.6	S
Caribbean	0.4	0.4	0.7	0.4	0.3	0.6	0.2	0.4	S
South America	0.7	0.7	0.7	0.6	0.7	0.6	0.5	0.6	6.3
Africa	1.1	1.3	1.4	1.0	0.3	1.5	1.0	0.8	4.4
Oceania	0.1	0.2	S	0.1	S	S	S	S	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 32. Employed doctoral scientists and engineers, by demographic characteristics and primary work activity: 1997

Characteristics	Total	Research and development					Teaching	Management, sales and administration	Computer applications	Professional services	Other activities
		Total	Applied research	Basic research	Development	Design					
Total	518,440	210,840	100,730	69,220	28,790	12,110	113,030	83,760	24,710	61,100	24,990
	[Percentage distribution]										
Sex:											
Male	77.0	80.7	80.8	76.5	86.5	90.4	73.9	81.0	89.3	60.3	74.7
Female	23.0	19.3	19.2	23.5	13.5	9.6	26.1	19.0	10.7	39.7	25.3
Race/ethnicity:											
White	81.8	78.0	79.0	79.3	73.5	73.2	85.1	85.0	68.9	89.2	83.4
Black	2.3	1.6	1.8	1.5	1.3	1.4	3.2	2.6	1.6	2.5	2.7
Asian or Pacific Islander	13.3	18.1	16.7	16.6	24.0	23.8	8.4	10.1	27.4	5.6	10.8
Hispanic	2.3	2.1	2.3	2.4	1.2	1.5	2.8	2.0	1.7	2.2	2.6
American Indian/Alaskan Native	0.3	0.2	0.3	0.2	S	S	0.4	0.4	0.4	0.6	0.5
Age:											
Under 35	12.4	17.9	16.1	21.6	15.6	16.2	9.5	4.8	17.9	8.6	8.0
35 to 39	14.2	17.7	16.9	18.7	18.9	15.4	12.3	9.4	18.2	11.6	12.1
40 to 44	16.7	18.3	18.5	18.6	18.3	14.8	14.5	15.2	16.3	18.6	13.6
45 to 49	17.1	15.8	16.9	14.4	14.1	17.8	15.8	20.7	15.6	20.5	16.1
50 to 54	17.2	13.3	14.2	10.8	15.2	16.4	18.8	22.8	16.9	19.0	20.1
55 to 59	12.1	9.2	9.4	8.4	9.2	11.8	15.1	16.7	8.2	11.3	14.4
60 to 64	5.9	4.6	4.5	4.1	5.6	5.0	8.2	6.4	5.2	4.9	8.0
65 to 75	4.3	3.3	3.4	3.3	3.2	2.7	5.7	3.9	1.5	5.6	7.6
Citizenship status:											
U.S. total	90.6	86.6	87.9	85.4	85.8	84.8	92.9	95.4	80.3	96.6	93.7
U.S. native	79.2	74.0	76.0	74.1	68.8	69.0	82.8	83.7	64.9	88.9	82.1
U.S. naturalized	11.4	12.6	11.9	11.3	17.0	15.8	10.0	11.7	15.5	7.7	11.6
Non-U.S. total	9.4	13.4	12.1	14.6	14.2	15.2	7.1	4.6	19.7	3.4	6.3
Non-U.S., permanent resident	7.7	10.6	9.5	11.6	11.7	11.0	6.3	3.9	16.5	3.1	5.4
Non-U.S., temporary resident	1.7	2.8	2.5	3.0	2.5	4.3	0.9	0.7	3.1	0.4	0.8

See explanatory information and SOURCE at end of table.

Table 32. Employed doctoral scientists and engineers, by demographic characteristics and primary work activity: 1997

Characteristics	Total	Research and development					Teaching	Management, sales, and administration	Computer applications	Professional services	Other activities
		Total	Applied research	Basic research	Development	Design					
	[Percentage distribution]										
Employer location:											
New England	7.8	7.9	7.4	9.1	7.8	5.9	8.4	7.2	8.9	7.3	7.2
Middle Atlantic	16.3	16.2	16.2	15.1	18.8	15.8	15.7	15.9	16.6	19.0	14.3
East North Central	13.7	13.6	12.6	14.9	15.2	10.2	16.4	13.3	11.0	11.7	11.7
West North Central	6.3	5.8	5.8	6.1	5.7	4.4	8.5	5.5	3.6	6.5	5.3
South Atlantic	18.4	19.0	20.7	19.0	15.3	13.5	16.3	19.4	16.6	17.5	23.8
East South Central	4.3	3.7	4.0	4.1	2.1	3.4	6.1	4.3	2.3	4.0	3.7
West South Central	7.9	7.6	7.7	7.1	7.0	11.7	8.8	7.7	7.4	7.9	7.0
Mountain	6.8	6.9	7.5	6.4	5.7	7.9	6.7	7.1	7.9	6.0	7.2
Pacific	18.1	19.0	17.9	17.8	22.4	27.1	12.7	19.1	25.7	19.9	19.1
U.S. territories and other areas	0.4	0.3	0.3	0.5	S	S	0.4	0.6	S	0.2	0.7
Place of birth:											
U.S.	78.4	73.1	75.2	73.2	67.9	68.3	82.0	83.1	64.1	87.8	81.5
Europe	3.8	4.3	3.8	5.6	3.7	3.2	3.8	2.9	3.9	3.2	3.4
Asia	14.2	19.0	17.5	17.1	25.8	26.1	9.9	10.8	28.3	5.8	11.8
North America	0.9	0.9	0.8	1.3	0.7	0.4	1.0	0.9	0.7	1.2	0.6
Central America	0.3	0.4	0.4	0.4	S	S	0.4	0.2	S	0.3	0.3
Carribean	0.4	0.3	0.3	0.3	0.2	S	0.4	0.6	0.4	0.6	0.5
South America	0.7	0.7	0.7	0.9	0.6	S	0.8	0.5	0.5	0.5	0.4
Africa	1.1	1.1	1.2	1.0	0.8	1.0	1.6	0.8	2.1	0.6	1.2
Oceania	0.1	0.1	0.1	0.2	S	S	0.2	0.2	S	S	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 33. Employed doctoral scientists and engineers, by demographic characteristics, race/ethnicity, and sex: 1997

Characteristics	Total			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	518,440	399,110	119,330	424,000	325,290	98,710	11,850	7,680	4,170
	[Percentage distribution]								
Age:									
Under 35	12.4	11.3	15.9	10.5	9.4	14.2	9.5	7.4	13.3
35 to 39	14.2	13.3	17.3	13.0	12.1	15.8	15.9	15.7	16.1
40 to 44	16.7	15.7	19.8	16.4	15.3	20.1	19.1	18.3	20.7
45 to 49	17.1	16.5	19.3	17.8	17.0	20.3	19.7	17.7	23.5
50 to 54	17.2	17.9	14.9	18.3	19.1	15.9	17.5	18.9	14.9
55 to 59	12.1	13.6	7.3	13.0	14.6	7.9	8.6	10.3	5.5
60 to 64	5.9	6.8	3.0	6.3	7.2	3.2	5.5	6.7	3.2
65 to 75	4.3	4.9	2.3	4.7	5.4	2.6	4.2	5.0	2.8
Citizenship status:									
U.S. total	90.6	90.2	92.1	96.8	96.7	97.3	84.7	78.8	95.8
U.S. native	79.2	77.9	83.4	91.5	91.0	92.9	68.5	58.7	86.5
U.S. naturalized	11.4	12.3	8.7	5.3	5.6	4.4	16.3	20.0	9.3
Non-U.S. total	9.4	9.8	7.9	3.2	3.3	2.7	15.3	21.2	4.2
Non-U.S., permanent resident	7.7	8.1	6.5	2.6	2.7	2.2	12.3	17.0	3.5
Non-U.S., temporary resident	1.7	1.8	1.4	0.6	0.6	0.5	3.0	4.2	0.7
Employer location:									
New England	7.8	7.6	8.6	7.9	7.6	8.9	6.5	7.5	4.6
Middle Atlantic	16.3	15.9	17.8	15.9	15.4	17.6	17.6	18.3	16.2
East North Central	13.7	13.8	13.5	13.8	13.9	13.6	11.8	11.5	12.4
West North Central	6.3	6.4	5.9	6.6	6.8	6.1	2.8	3.2	2.1
South Atlantic	18.4	18.2	19.1	18.6	18.6	18.8	30.4	28.3	34.4
East South Central	4.3	4.4	3.8	4.5	4.6	3.9	6.6	7.0	5.8
West South Central	7.9	8.3	6.6	7.7	8.1	6.4	8.7	8.6	9.0
Mountain	6.8	7.2	5.8	7.3	7.6	6.2	2.9	4.3	S
Pacific	18.1	17.9	18.7	17.5	17.2	18.2	12.6	11.4	14.9
U.S. territories and other areas	0.4	0.4	0.4	0.2	0.2	0.2	S	0.1	S
Place of birth:									
U.S.	78.4	77.2	82.5	90.7	90.3	92.0	68.3	58.5	86.3
Europe	3.8	3.9	3.4	4.4	4.6	4.0	0.7	0.8	S
Asia	14.2	15.3	10.6	2.6	2.8	1.7	0.5	0.7	S
North America	0.9	0.9	1.1	1.1	1.1	1.3	S	0.1	S
Central America	0.3	0.3	0.3	0.1	0.1	0.0	0.4	0.1	S
Caribbean	0.4	0.4	0.5	0.1	0.1	0.0	6.7	6.7	6.7
South America	0.7	0.6	0.9	0.2	0.2	0.3	0.9	0.7	1.2
Africa	1.1	1.3	0.6	0.7	0.8	0.5	22.6	32.5	4.4
Oceania	S	S	0.2	0.2	0.1	0.2	S	S	S

See explanatory information and SOURCE at end of table.

Table 33. Employed doctoral scientists and engineers, by demographic characteristics, race/ethnicity, and sex: 1997

Characteristics	Asian or Pacific Islander			Hispanic			American Indian/Alaskan Native		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	68,860	56,320	12,540	11,790	8,420	3,380	1,770	1,300	470
	[Percentage distribution]								
Age:									
Under 35	24.5	23.2	30.3	12.9	10.7	18.6	8.2	8.1	S
35 to 39	20.4	18.8	27.7	20.5	18.7	25.0	8.0	8.6	S
40 to 44	17.6	17.7	17.4	18.4	17.7	20.2	12.6	11.0	17.2
45 to 49	13.1	13.7	10.5	15.5	15.3	16.0	12.3	8.5	23.0
50 to 54	10.5	11.1	7.9	15.9	16.9	13.3	28.2	29.9	23.3
55 to 59	7.4	8.2	3.9	11.1	14.0	4.0	18.0	17.9	18.1
60 to 64	4.1	4.6	1.9	3.8	4.4	2.1	6.8	8.4	S
65 to 75	2.3	2.7	0.5	2.0	2.4	S	6.0	7.6	S
Citizenship status:									
U.S. total	54.6	55.5	50.6	82.6	80.8	87.1	98.7	98.3	100.0
U.S. native	8.7	7.7	13.3	57.0	55.7	60.0	95.5	94.9	97.1
U.S. naturalized	45.9	47.7	37.4	25.6	25.1	27.1	3.2	S	S
Non-U.S. total	45.5	44.5	49.4	17.4	19.2	12.9	S	S	S
Non-U.S., permanent resident	37.5	36.6	41.5	13.9	15.9	8.8	S	S	S
Non-U.S., temporary resident	7.9	8.0	7.9	3.5	3.3	4.1	S	S	S
Employer location:									
New England	8.0	7.7	9.3	6.5	7.7	3.4	5.5	6.8	S
Middle Atlantic	18.9	18.7	19.9	14.5	13.7	16.4	7.2	5.9	10.8
East North Central	14.1	14.0	14.9	10.2	11.2	7.6	12.2	13.0	S
West North Central	5.2	5.1	5.4	4.2	4.3	3.8	7.5	7.6	S
South Atlantic	15.1	15.0	15.7	19.6	18.0	23.5	12.0	10.2	17.0
East South Central	2.7	2.8	2.4	3.4	4.1	1.7	9.9	11.4	S
West South Central	8.0	8.5	5.6	11.3	11.3	11.5	16.4	19.3	S
Mountain	4.5	4.7	3.5	7.5	7.8	6.8	14.7	16.0	11.2
Pacific	23.2	23.2	23.2	16.2	15.1	18.9	14.7	9.8	28.0
U.S. territories and other areas	0.3	0.3	S	6.7	6.8	6.6	S	S	S
Place of birth:									
U.S.	8.0	7.0	12.4	55.3	53.5	59.6	95.7	95.6	95.9
Europe	0.4	0.4	0.4	2.9	3.4	1.8	S	S	S
Asia	90.7	91.7	86.3	1.5	1.4	1.9	4.1	4.4	S
North America	0.1	0.2	S	S	S	S	S	S	S
Central America	S	S	S	11.2	12.0	9.2	S	S	S
Caribbean	0.2	0.2	S	7.9	7.7	8.5	S	S	S
South America	0.2	0.1	0.4	20.5	21.1	19.0	S	S	S
Africa	0.2	0.2	0.4	0.7	0.9	S	S	S	S
Oceania	0.1	0.1	S	S	S	S	S	S	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 34. Employed doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1997

Characteristics	Total			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	518,440	399,110	119,330	424,000	325,290	98,710	11,850	7,680	4,170
	[Percentage distribution]								
Sector of employment:									
Universities and 4-year colleges	45.0	43.8	49.0	45.7	44.8	48.7	55.2	54.7	56.1
Other educational institutions	2.6	2.0	4.7	2.7	2.1	4.8	5.3	4.1	7.4
Private-for-profit	31.8	35.1	21.0	29.7	32.6	19.8	19.2	23.1	12.0
Self-employed	4.8	4.0	7.7	5.5	4.5	8.8	2.4	2.1	3.0
Private not-for-profit	5.1	4.4	7.3	5.4	4.6	7.7	6.5	6.8	5.9
Federal government	7.3	7.7	6.0	7.7	8.3	5.9	6.4	5.5	8.2
State and local government	3.0	2.7	3.9	3.1	2.8	3.9	4.7	3.6	6.9
Other sector	0.3	0.3	0.4	0.3	0.3	0.3	S	S	S
Primary work activity:									
R&D	40.7	42.6	34.1	38.8	40.9	31.7	28.5	31.4	23.2
Applied research	19.4	20.4	16.2	18.8	19.8	15.4	15.0	16.6	12.1
Basic research	13.4	13.3	13.6	12.9	13.1	12.5	9.0	9.8	7.5
Development	5.6	6.2	3.3	5.0	5.6	2.8	3.1	3.2	2.9
Design	2.3	2.7	1.0	2.1	2.5	0.9	1.4	1.8	S
Teaching	21.8	20.9	24.7	22.7	21.8	25.5	30.9	32.0	29.0
Management, sales, and administration	16.2	17.0	13.3	16.8	17.7	13.8	18.7	17.3	21.2
Computer applications	4.8	5.5	2.2	4.0	4.7	1.8	3.3	4.2	1.7
Professional services	11.8	9.2	20.3	12.8	10.1	21.7	12.9	9.2	19.6
Other activities	4.8	4.7	5.3	4.9	4.7	5.6	5.7	5.9	5.4
Federal support:									
Receiving support	26.4	26.8	24.9	26.3	26.8	24.4	25.4	26.0	24.3
Not receiving support	73.6	73.2	75.1	73.7	73.2	75.6	74.6	74.0	75.7
Relationship between degree and job:									
Closely related	69.3	68.2	73.0	69.9	68.7	73.8	71.9	68.9	77.4
Somewhat related	23.4	24.1	20.9	22.8	23.6	20.2	21.4	23.0	18.4
Not related	7.3	7.7	6.0	7.3	7.7	6.0	6.7	8.1	4.2

See explanatory information and SOURCE at end of table.

Table 34. Employed doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1997

Characteristics	Asian or Pacific Islander			Hispanic			American Indian/Alaskan Native		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	68,860	56,320	12,540	11,790	8,420	3,380	1,770	1,300	470
	[Percentage distribution]								
Sector of employment:									
Universities and 4-year colleges	37.2	34.9	47.4	52.6	51.1	56.2	48.9	54.5	33.4
Other educational institutions	1.6	1.5	2.4	3.4	1.4	8.4	5.0	4.0	S
Private-for-profit	48.8	51.7	35.6	25.5	30.4	13.1	23.3	25.3	17.9
Self-employed	1.3	1.2	1.3	4.0	3.2	5.9	7.4	6.6	S
Private not-for-profit	3.2	2.9	4.5	4.6	3.8	6.5	2.8	S	S
Federal government	5.3	5.2	5.6	6.3	7.0	4.8	6.8	5.7	S
State and local government	2.2	2.2	2.6	2.6	2.1	3.8	5.3	S	14.2
Other sector	0.4	0.4	0.6	1.0	0.8	S	S	S	S
Primary work activity:									
R&D	55.3	54.5	58.7	38.3	42.2	28.6	23.8	22.8	26.4
Applied research	24.4	24.5	24.0	19.8	21.0	16.9	14.6	15.5	12.1
Basic research	16.7	14.6	25.8	14.0	15.9	9.4	6.9	5.8	S
Development	10.0	10.7	7.2	2.9	3.2	1.9	S	S	S
Design	4.2	4.7	1.7	1.6	2.0	S	S	S	S
Teaching	13.8	13.4	15.3	27.3	25.2	32.5	27.1	29.3	21.2
Management, sales, and administration	12.3	13.3	7.6	14.0	14.7	12.2	16.7	19.6	S
Computer applications	9.8	10.6	6.2	3.7	4.5	1.7	5.2	6.8	S
Professional services	4.9	4.0	9.0	11.2	7.9	19.3	20.4	14.0	38.2
Other activities	3.9	4.1	3.1	5.6	5.5	5.7	6.9	7.5	S
Federal support:									
Receiving support	26.9	26.3	29.7	27.9	29.3	24.4	24.9	26.6	20.0
Not receiving support	73.1	73.7	70.3	72.1	70.7	75.6	75.1	73.4	80.0
Relationship between degree and job:									
Closely related	64.6	64.6	64.3	73.8	73.2	75.4	71.0	69.1	76.3
Somewhat related	27.8	27.6	28.7	20.4	21.6	17.4	21.0	22.2	17.7
Not related	7.6	7.8	7.0	5.8	5.2	7.2	8.0	8.7	S

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 35. Employed doctoral scientists and engineers, by employment-related characteristics and sector of employment: 1997

Characteristics	Total	Universities and 4-year colleges	Other educational institutions	Private for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Total	518,440	233,180	136,470	165,040	25,100	26,330	38,070	15,450	1,620
	[Percentage distribution]								
Field of doctorate:									
Sciences	82.9	88.4	97.3	70.2	91.6	90.7	83.8	92.0	87.1
Computer and mathematical sciences	6.3	8.0	5.3	5.9	2.1	3.6	4.0	0.9	S
Computer and information sciences	1.5	1.4	0.5	2.4	0.5	0.9	0.7	0.3	S
Mathematical sciences	4.7	6.6	4.9	3.5	1.5	2.8	3.3	0.6	S
Biological and agricultural sciences	24.0	29.4	22.3	18.0	12.1	21.7	28.4	22.2	12.1
Agricultural/food sciences	3.0	3.2	1.8	3.1	2.7	1.4	4.0	1.5	S
Biological sciences	20.2	25.5	20.1	14.3	9.1	19.5	21.9	18.1	9.8
Environmental life sciences	0.8	0.7	0.3	0.6	0.3	0.8	2.6	2.6	S
Health sciences	3.3	4.0	3.3	2.2	2.3	5.5	3.0	4.4	S
Physical and related sciences	20.3	15.8	19.4	28.5	11.8	13.5	26.8	11.8	6.9
Chemistry, except biochemistry	10.5	6.7	11.2	18.3	6.6	6.2	7.7	3.9	S
Earth/atmos/Ocean sciences	2.9	3.1	2.3	2.1	2.0	2.1	6.3	4.6	S
Physics and astronomy	6.9	6.1	5.8	8.1	3.2	5.2	12.8	3.2	4.7
Social sciences	13.7	19.5	14.8	5.1	9.8	15.9	12.8	17.1	63.0
Economics	3.9	4.9	0.9	2.0	1.7	3.8	5.9	3.5	56.2
Political and related sciences	3.1	4.6	3.6	0.9	2.3	3.0	2.7	4.8	S
Sociology	2.6	4.1	3.7	0.5	1.8	3.8	1.2	3.1	S
Other social sciences	4.2	6.0	6.6	1.6	4.0	5.2	3.0	5.7	3.4
Psychology	15.3	11.7	32.2	10.5	53.5	30.5	8.8	35.7	3.2
Engineering	17.1	11.6	2.7	29.8	8.4	9.3	16.2	8.0	12.9
Aerospace/aeronautical engineering	0.7	0.5	S	1.1	0.5	0.6	1.2	0.1	S
Chemical engineering	2.4	1.1	0.4	5.1	1.2	1.5	1.3	0.1	S
Civil/architectural engineering	1.6	1.5	0.4	2.0	0.7	0.9	1.5	2.4	S
Electrical/computer engineering	4.6	3.0	0.5	8.6	2.0	2.2	3.3	1.1	4.2
Materials/metallurgical engineering	1.6	0.7	S	3.4	1.1	0.7	2.1	0.3	S
Mechanical engineering	2.1	1.4	S	4.0	1.1	1.1	1.7	0.1	S
Other engineering	4.1	5.8	1.0	5.7	1.9	2.5	5.1	3.7	5.7
Year of doctorate:									
1995-96 graduates	9.2	10.0	8.7	8.9	3.0	11.2	8.3	8.0	6.5
1993-94 graduates	8.0	8.8	9.2	7.7	4.5	9.1	6.3	6.6	9.8
1990-92 graduates	11.0	10.6	11.3	12.0	7.5	11.8	10.1	11.9	11.1
1985-89 graduates	15.9	15.5	17.4	16.2	13.8	16.5	15.8	21.0	15.8
1980-84 graduates	14.5	13.2	14.5	15.4	19.0	14.3	15.3	16.7	16.6
1970-79 graduates	27.7	26.3	30.6	27.7	32.0	27.8	31.3	28.8	28.4
1960-69 graduates	11.7	13.5	7.6	10.3	13.8	7.5	11.5	6.2	10.1
Pre-1960 graduates	2.1	2.1	0.8	1.7	6.5	1.8	1.3	0.8	S

See explanatory information and SOURCE at end of table.

Table 35. Employed doctoral scientists and engineers, by employment-related characteristics and sector of employment: 1997

Characteristics	Total	Universities and 4-year colleges	Other educational institutions	Private for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Primary work activity:									
R&D	40.7	39.2	2.7	47.2	15.8	37.9	59.6	25.3	40.5
Applied research	19.4	14.8	1.6	24.9	8.3	22.5	36.6	16.4	28.1
Basic research	13.4	23.1	0.8	2.5	2.0	10.5	18.5	5.3	3.9
Development	5.6	1.0	S	14.1	3.7	3.3	2.8	1.6	5.3
Design	2.3	0.3	S	5.7	1.7	1.6	1.7	2.1	3.3
Teaching	21.8	43.9	63.5	0.5	1.4	1.4	0.5	1.3	S
Management, sales, and administration	16.2	9.1	10.7	23.8	9.9	24.8	19.3	30.5	38.0
Computer applications	4.8	1.3	0.9	10.6	3.6	3.9	4.0	4.1	S
Professional services	11.8	4.1	17.1	12.5	59.7	24.9	6.9	27.0	5.3
Other activities	4.8	2.4	5.0	5.3	9.6	7.1	9.7	11.7	14.7

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 36. Employed doctoral scientists and engineers, by employment-related characteristics and primary work activity: 1997

Characteristics	Total	Research and development					Teaching	Management, sales, and administration	Computer applications	Professional services	Other activities
		Total	Applied research	Basic research	Development	Design					
Total	518,440	210,840	100,730	69,220	28,790	12,110	113,030	83,760	24,710	61,100	24,990
	[Percentage distribution]										
Field of doctorate:											
Sciences	82.9	79.1	78.7	93.6	60.6	43.2	88.0	80.4	68.9	95.4	83.6
Computer and mathematical sciences	6.3	4.8	4.7	5.4	3.4	5.9	10.9	4.1	20.7	0.7	3.4
Computer and information sciences	1.5	1.4	1.5	1.2	1.3	2.0	1.6	1.3	8.3	S	0.2
Mathematical sciences	4.7	3.4	3.2	4.2	2.1	3.9	9.3	2.8	12.4	0.7	3.1
Biological and agricultural sciences	24.0	31.1	25.9	49.7	16.3	4.1	18.8	21.7	9.5	17.7	25.5
Agricultural/food sciences	3.0	3.9	5.3	2.1	4.7	0.6	1.7	3.9	1.3	1.4	4.4
Biological sciences	20.2	26.4	19.1	47.3	11.0	3.2	16.3	16.8	7.7	15.9	19.8
Environmental life sciences	0.8	0.9	1.5	0.2	0.6	S	0.7	1.1	0.5	0.4	1.4
Health sciences	3.3	2.8	4.3	1.2	2.5	0.8	4.0	3.9	0.8	4.2	2.5
Physical and related sciences	20.3	24.9	25.1	22.5	31.0	22.5	16.2	22.2	25.3	6.2	23.3
Chemistry, except biochemistry	10.5	13.1	14.2	9.5	20.2	7.8	7.9	12.8	6.0	3.4	13.0
Earth/atmos/ocean sciences	2.9	3.3	3.7	4.0	1.3	1.7	3.0	2.6	3.5	1.1	4.1
Physics and astronomy	6.9	8.5	7.2	9.1	9.4	13.0	5.2	6.7	15.8	1.7	6.2
Social sciences	13.7	8.8	10.9	8.4	3.7	4.8	26.4	15.4	6.9	6.3	17.2
Economics	3.9	3.6	4.9	2.9	0.9	2.0	6.1	3.8	2.3	1.7	3.7
Political and related sciences	3.1	1.2	1.5	1.4	0.5	0.5	6.4	4.1	1.0	1.6	5.3
Sociology	2.6	1.5	1.7	1.8	0.6	0.4	5.6	2.6	1.0	0.9	2.8
Other social sciences	4.2	2.5	2.8	2.3	1.8	1.9	8.4	4.8	2.6	2.1	5.4
Psychology	15.3	6.6	7.8	6.4	3.7	5.0	11.7	13.0	5.6	60.3	11.8
Engineering	17.1	20.9	21.3	6.4	39.4	56.8	12.0	19.6	31.1	4.6	16.4
Aerospace/aeronautical engineering	0.7	1.0	1.1	0.4	1.0	2.6	0.4	0.8	1.7	0.1	0.6
Chemical engineering	2.4	3.3	3.3	0.7	7.9	7.1	1.1	3.1	2.4	0.5	2.4
Civil/architectural engineering	1.6	1.5	1.4	0.4	1.3	8.5	1.9	1.7	1.9	0.7	2.3
Electrical/computer engineering	4.6	5.3	4.8	1.7	11.9	14.1	3.0	5.8	12.2	0.8	3.4
Materials/metallurgical engineering	1.6	2.5	2.8	0.7	5.9	2.6	0.5	2.4	0.8	0.1	1.5
Mechanical engineering	2.1	2.9	2.8	0.6	6.0	9.0	1.6	1.7	4.4	0.6	1.4
Other engineering	4.1	4.5	5.2	1.8	5.5	13.0	3.5	4.1	7.7	1.8	4.8

See explanatory information and SOURCE at end of table.

Table 36. Employed doctoral scientists and engineers, by employment-related characteristics and primary work activity: 1997

Characteristics	Total	Research and development					Teaching	Management, sales, and administration	Computer applications	Professional services	Other activities
		Total	Applied research	Basic research	Development	Design					
	[Percentage distribution]										
Year of doctorate:											
1995-96 graduates	9.2	12.4	12.0	14.2	9.1	12.6	7.5	3.6	14.2	7.6	7.1
1993-94 graduates	8.0	9.6	9.3	10.6	8.6	9.1	7.9	4.1	10.6	7.9	5.9
1990-92 graduates	11.0	12.4	12.3	12.1	13.4	12.1	10.3	7.6	14.0	11.6	8.7
1985-89 graduates	15.9	17.4	18.0	17.2	18.5	11.2	15.2	13.3	14.8	16.6	14.5
1980-84 graduates	14.5	13.8	13.7	14.1	13.4	13.4	12.8	16.6	12.6	18.4	14.4
1970-79 graduates	27.7	22.9	24.0	19.0	25.7	29.9	29.0	37.9	25.0	27.5	30.5
1960-69 graduates	11.7	9.6	9.0	10.7	9.3	10.1	15.2	14.8	8.0	8.1	14.6
Pre-1960 graduates	2.1	1.9	1.8	2.0	2.0	1.6	2.1	2.0	0.8	2.2	4.2
Sector of employment:											
Universities and 4-year colleges	45.0	43.3	34.2	77.8	7.8	6.7	90.6	25.4	12.2	15.8	22.0
Other educational institutions	2.6	0.2	0.2	0.2	S	S	7.7	1.7	0.5	3.8	2.8
Private-for-profit	31.8	36.9	40.8	5.9	80.9	77.8	0.8	46.9	70.8	33.9	35.2
Self-employed	4.8	1.9	2.1	0.7	3.3	3.5	0.3	3.0	3.6	24.5	9.7
Private not-for-profit	5.1	4.7	5.9	4.0	3.0	3.5	0.3	7.8	4.2	10.7	7.4
Federal government	7.3	10.8	13.8	10.2	3.8	5.3	0.2	8.8	6.1	4.3	14.7
State and local government	3.0	1.9	2.5	1.2	0.9	2.7	0.2	5.6	2.6	6.8	7.3
Other sector	0.3	0.3	0.5	0.1	0.3	0.4	S	0.7	S	0.1	1.0

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 37. Employed doctoral scientists and engineers, by field of doctorate and broad occupation: 1997

Field of doctorate	Total	Broad occupation																		
		Total	Computer and information scientists		Mathematical scientists		Life and related scientists		Physical and related scientists		Social and related scientists		Psychologists		Engineers		Non-S&E Occupations				
			Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Total	Managers, admin.	Health and related	Teacher, ex. S&E postsec.	Other
		[Percentage distribution]																		
Total	518,440	100.0	4.0	1.0	1.1	2.6	12.7	6.1	9.3	4.7	2.4	5.9	8.7	3.0	10.2	3.3	25.0	13.7	2.8	4.0	4.5
Sciences	429,820	100.0	3.3	1.0	1.3	3.0	15.1	7.3	10.7	5.6	2.9	7.1	10.5	3.6	2.1	0.3	26.1	13.4	3.2	4.6	4.9
Computer and mathematical sciences	32,400	100.0	20.4	10.6	9.5	36.9	0.4	S	0.8	S	S	0.3	S	S	2.6	0.7	17.5	10.3	0.2	2.1	5.0
Computer/information sciences	8,000	100.0	48.6	30.4	S	0.7	0.6	S	S	S	S	S	S	S	3.1	S	15.8	10.2	S	3.3	2.3
Mathematical sciences	24,400	100.0	11.2	4.1	12.6	48.8	0.4	S	1.0	0.2	S	0.3	S	S	2.4	0.8	18.1	10.4	0.2	1.7	5.9
Biological and agricultural sciences	124,600	100.0	1.2	0.1	0.8	0.3	44.1	23.0	1.4	2.0	0.1	0.1	0.1	0.1	0.8	0.1	26.0	12.1	6.5	2.9	4.5
Agricultural/ food sciences	15,670	100.0	0.7	S	0.4	S	49.0	19.3	2.6	1.5	S	0.4	S	S	1.1	S	24.7	14.0	1.5	2.0	7.2
Biological sciences	104,630	100.0	1.1	0.1	0.8	0.3	43.6	23.8	1.1	2.0	0.1	S	0.1	0.1	0.6	0.1	26.3	11.7	7.6	3.1	4.0
Environmental life sciences	4,300	100.0	1.6	S	1.2	S	36.6	17.8	5.5	4.2	2.1	S	S	S	5.2	S	24.0	16.6	S	1.9	5.5
Health sciences	17,180	100.0	1.0	S	0.4	S	18.5	5.1	2.3	S	1.3	S	0.9	0.3	0.5	S	69.1	17.1	17.5	31.9	2.7
Physical and related sciences	105,250	100.0	4.0	0.3	0.3	0.2	4.9	0.7	40.8	19.9	0.1	0.1	S	0.1	6.3	0.9	21.5	14.0	1.0	1.3	5.2
Chemistry except biochemistry	54,220	100.0	1.9	0.2	0.1	S	7.0	0.6	43.8	18.5	S	S	S	0.1	3.7	0.4	23.8	15.9	1.4	1.4	5.1
Earth/atmos/ocean sciences	15,110	100.0	2.2	S	0.4	S	3.6	0.9	44.8	26.6	S	0.6	S	S	3.0	0.8	16.9	11.3	0.4	1.2	4.0
Physics and astronomy	35,920	100.0	7.9	0.6	0.6	0.7	2.1	0.6	34.7	19.3	0.2	0.1	S	0.1	11.6	1.7	19.9	12.3	0.7	1.0	5.8
Social sciences	71,070	100.0	1.4	0.4	1.1	0.6	0.3	0.6	0.6	0.6	16.3	42.2	0.8	0.4	0.3	S	34.4	17.1	1.0	9.4	6.9
Economics	20,080	100.0	0.9	0.4	1.1	S	S	0.9	0.5	S	29.1	41.3	S	S	S	S	25.3	16.5	0.6	5.2	2.9
Political and related sciences	15,820	100.0	1.0	S	0.4	S	S	S	S	0.7	8.4	53.7	0.3	S	0.3	S	34.7	21.7	1.4	3.7	7.9
Sociology	13,230	100.0	0.9	S	1.0	0.4	S	0.9	S	S	14.4	50.2	1.3	S	S	S	30.0	15.1	0.6	7.6	6.7
Other social sciences	21,940	100.0	2.4	0.8	1.6	1.9	0.9	0.7	1.2	1.2	11.3	29.9	1.5	0.9	0.5	S	45.2	15.6	1.4	18.4	9.9
Psychology	79,320	100.0	1.4	0.1	0.4	S	1.8	0.8	S	0.1	0.7	0.3	55.9	18.9	0.3	S	19.2	11.8	0.9	2.5	4.0

See explanatory information and SOURCE at end of table.

Table 37. Employed doctoral scientists and engineers, by field of doctorate and broad occupation: 1997

Field of doctorate	Total	Broad occupation																			
		Total	Computer and information scientists		Mathematical scientists		Life and related scientists		Physical and related scientists		Social and related scientists		Psychologists		Engineers		Non-S&E Occupations				
			Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Non-teacher	Postsec. teacher	Total	Managers, admin.	Health and related	Teacher, ex. S&E postsec.	Other
		[Percentage distribution]																			
Engineering	88,620	100.0	7.3	1.0	0.5	0.5	1.1	0.3	2.5	0.3	S	0.1	S	S	49.2	17.8	19.5	15.1	0.8	1.2	2.5
Aerospace/ aeronautical engineering	3,720	100.0	6.6	S	S	S	1.8	S	3.6	S	S	S	S	S	55.7	15.4	15.2	13.4	1.8	S	S
Chemical engineering	12,280	100.0	2.6	S	S	S	1.1	0.5	1.7	0.5	S	S	S	S	58.2	12.7	22.4	17.9	0.8	1.5	2.2
Civil/architectural engineering	8,190	100.0	2.0	S	S	S	S	S	2.3	S	S	S	S	S	45.0	32.9	16.0	14.3	S	S	1.8
Electrical/computer engineering	23,750	100.0	14.4	2.1	S	0.2	0.4	S	1.5	S	S	S	S	S	42.0	17.5	21.5	17.8	0.5	0.4	2.8
Materials/ metallurgical engineering	8,510	100.0	1.6	S	S	S	1.0	S	5.2	0.6	S	S	S	S	65.3	8.4	17.6	14.7	S	0.6	2.4
Mechanical engineering	11,080	100.0	6.0	S	S	S	0.8	S	0.8	S	S	S	S	S	57.0	20.7	14.0	10.2	0.8	S	3.1
Other engineering	21,100	100.0	7.2	1.7	1.6	1.1	2.3	0.7	4.1	0.6	S	0.3	S	S	41.8	17.8	20.9	13.6	1.5	3.1	2.7

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.

KEY: S=Suppressed due to too few cases (fewer than 50 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 38. Median annual salaries of doctoral scientists and engineers, by field of doctorate, race/ethnicity, and sex: 1997

Field of doctorate	Total			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$65,000	$70,000	$53,000	$65,500	$70,000	$53,000	$59,000	$62,000	$52,000
Sciences	62,000	66,000	52,000	63,500	67,500	52,500	57,000	60,000	52,000
Computer and mathematical sciences	65,000	67,000	56,000	67,000	68,000	56,000	63,000	69,000	S
Computer/information sciences	72,000	75,000	61,000	72,000	72,000	58,000	S	S	S
Mathematical sciences	63,000	65,000	52,000	65,000	66,000	54,000	63,000	63,000	S
Biological and agricultural sciences	60,000	63,000	50,000	60,800	65,000	50,000	54,000	57,000	48,000
Agricultural/ food sciences	60,000	62,000	50,000	60,000	62,000	50,000	44,000	44,000	S
Biological sciences	60,000	64,000	49,800	61,000	65,000	50,000	56,000	60,000	49,000
Environmental life sciences	60,000	61,000	50,000	61,000	61,000	50,000	S	S	S
Health sciences	60,000	71,000	55,000	60,000	71,500	54,000	58,000	60,000	57,000
Physical and related sciences	70,000	72,000	59,000	72,000	74,000	60,000	67,000	69,000	S
Chemistry except biochemistry	70,500	73,000	60,000	72,400	75,000	62,000	65,000	67,000	S
Earth/atmos/ocean sciences	60,000	62,000	46,000	62,000	65,000	48,000	S	S	S
Physics and astronomy	73,000	75,000	60,000	75,000	75,000	58,000	76,000	76,000	S
Social sciences	58,000	60,100	51,300	59,400	62,000	52,000	55,000	56,500	53,000
Economics	69,000	70,000	64,000	70,000	70,000	65,000	66,000	66,000	S
Political and related sciences	58,000	60,000	50,000	58,000	60,000	51,800	65,000	71,000	45,000
Sociology	53,300	55,000	50,000	55,000	57,000	50,000	50,000	46,000	56,000
Other social sciences	52,000	55,000	49,000	52,000	56,400	49,600	50,000	45,800	52,000
Psychology	60,000	64,000	52,000	60,000	65,000	53,000	55,000	57,000	52,000
Engineering	75,000	76,000	63,000	78,000	80,000	62,000	68,600	68,600	S
Aerospace/aeronautical engineering	75,000	74,000	S	78,500	78,500	S	S	S	S
Chemical engineering	79,000	80,000	65,000	81,700	84,000	60,000	S	S	S
Civil/architectural engineering	69,000	70,000	50,000	70,000	70,000	55,000	52,000	52,000	S
Electrical/computer engineering	80,000	80,000	68,000	82,500	84,000	61,200	72,000	73,500	S
Materials/metallurgical engineering	75,000	76,000	63,000	78,000	80,000	62,000	S	S	S
Mechanical engineering	73,000	74,000	56,000	75,000	75,000	S	S	S	S
Other engineering	75,000	75,000	64,100	76,000	79,000	65,000	64,000	64,000	S

See explanatory information and SOURCE at end of table.

Table 38. Median annual salaries of doctoral scientists and engineers, by field of doctorate, race/ethnicity, and sex: 1997

Field of doctorate	Asian or Pacific Islander			Hispanic			American Indian/Alaskan Native		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$65,000	$67,000	$51,000	$59,500	$65,000	$47,000	$56,000	$58,000	$50,000
Sciences	57,600	60,000	50,000	56,000	60,000	46,000	54,000	57,000	50,000
Computer and mathematical sciences	62,100	64,000	57,700	64,000	67,800	S	S	S	S
Computer/information sciences	72,000	75,000	65,000	S	S	S	S	S	S
Mathematical sciences	55,000	55,000	51,000	54,000	55,000	S	S	S	S
Biological and agricultural sciences	47,000	51,000	38,600	54,000	58,000	44,000	60,000	60,000	S
Agricultural/ food sciences	57,700	60,000	50,000	54,000	57,000	S	S	S	S
Biological sciences	45,000	50,000	37,000	54,600	60,000	43,000	62,000	S	S
Environmental life sciences	55,000	55,000	S	S	S	S	S	S	S
Health sciences	70,000	74,000	65,000	62,000	S	54,000	S	S	S
Physical and related sciences	65,000	65,000	57,000	60,000	68,000	43,500	78,000	80,000	S
Chemistry except biochemistry	65,000	65,000	57,000	60,000	70,000	41,000	75,000	S	S
Earth/atmos/ocean sciences	50,000	50,000	S	51,000	51,000	S	S	S	S
Physics and astronomy	66,000	66,000	63,000	68,700	70,200	S	S	S	S
Social sciences	54,000	55,000	48,000	54,000	56,000	44,000	48,000	49,000	S
Economics	60,000	60,000	57,000	80,000	90,000	S	S	S	S
Political and related sciences	60,000	65,000	S	52,000	52,000	S	S	S	S
Sociology	44,000	49,000	41,000	47,000	S	S	S	S	S
Other social sciences	50,000	51,000	43,500	50,000	56,000	39,000	48,000	48,000	S
Psychology	50,000	50,000	50,000	50,000	64,000	47,000	52,000	S	S
Engineering	72,000	72,000	63,000	70,000	70,000	S	S	S	S
Aerospace/aeronautical engineering	67,000	67,000	S	S	S	S	S	S	S
Chemical engineering	74,000	74,000	S	S	S	S	S	S	S
Civil/architectural engineering	68,000	70,000	S	S	S	S	S	S	S
Electrical/computer engineering	75,000	76,000	70,000	70,000	70,000	S	S	S	S
Materials/metallurgical engineering	70,000	70,000	69,000	S	S	S	S	S	S
Mechanical engineering	70,000	70,000	S	S	S	S	S	S	S
Other engineering	70,000	70,000	56,000	68,000	70,000	S	S	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 39. Median annual salaries of doctoral scientists and engineers, by occupation, race/ethnicity, and sex: 1997

Occupation	Total			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$65,000	$70,000	$53,000	$65,500	$70,000	$53,000	$59,000	$62,000	$52,000
Scientists	60,000	63,000	50,000	60,000	64,000	50,000	54,000	57,000	48,500
Computer and mathematical scientists	66,000	68,000	56,800	67,000	69,000	56,000	63,000	69,000	S
Computer/information scientists	75,000	76,000	70,000	76,000	78,000	71,000	S	S	S
Mathematical scientists	71,000	75,000	63,000	72,600	75,000	60,000	S	S	S
Postsecondary teachers, computer and mathematical sciences	55,000	56,000	48,000	56,000	58,000	50,000	58,000	58,000	S
Life and related scientists	57,000	60,000	47,500	59,000	61,000	49,200	51,600	54,000	50,000
Agricultural scientists	60,500	62,000	50,000	61,000	63,000	50,000	S	S	S
Biological scientists	56,000	60,000	45,500	60,000	63,000	49,500	47,000	47,000	48,000
Forestry and conservation scientists	59,000	59,000	S	59,000	59,000	S	S	S	S
Postsecondary teachers, life and related sciences	56,000	60,000	49,000	57,000	60,000	49,000	55,000	56,000	S
Physical and related scientists	65,000	67,100	55,000	67,000	70,000	54,300	61,300	62,500	S
Chemists, except biochemistry	71,000	72,000	65,000	74,000	75,000	68,000	64,800	64,800	S
Earth scientists	68,000	70,000	50,000	70,000	71,600	52,000	S	S	S
Physics and astronomers	74,000	75,000	58,000	75,000	75,300	45,000	S	S	S
Other physical scientists	75,000	77,000	S	74,600	75,000	S	S	S	S
Postsecondary teachers, physical and related sciences	53,600	55,000	42,000	54,000	55,000	42,000	46,900	50,000	S
Social scientists	55,000	56,000	50,000	55,000	56,500	50,000	50,000	50,000	48,000
Economists	75,000	75,000	77,000	80,000	80,000	80,000	S	S	S
Political scientists	75,000	75,000	S	75,000	85,000	S	S	S	S
Sociologists and anthropologists	52,100	52,000	55,000	55,000	53,000	56,000	S	S	S
S&T historians and other social scientists	54,000	56,000	51,000	54,800	55,000	52,400	S	S	S
Postsecondary teachers, social and related sciences	52,000	54,500	45,500	53,000	55,000	47,000	50,000	50,000	44,800
Psychologists	56,000	61,000	50,000	57,300	62,000	50,000	50,000	53,000	50,000
Psychologists	60,000	65,000	52,000	60,000	65,000	53,000	55,000	58,000	55,000
Postsecondary teachers, psychology	50,000	55,000	45,000	52,000	55,000	46,000	45,000	S	42,000
Engineers	72,600	73,400	63,000	75,000	75,000	62,000	67,000	67,000	S
Aerospace/aeronautical engineers	79,500	80,000	76,000	80,500	80,500	S	S	S	S
Chemical engineers	74,500	75,000	68,000	75,000	75,000	62,000	S	S	S
Civil and architectural engineers	68,000	69,000	S	75,000	75,000	S	S	S	S
Electric and related engineers	80,000	80,000	68,000	82,000	83,000	65,000	S	S	S
Industrial engineers	72,000	72,000	S	80,000	80,000	S	S	S	S
Mechanical engineers	74,000	74,000	57,000	75,000	75,000	S	S	S	S
Other engineers	74,500	75,000	62,500	78,000	80,000	62,500	S	S	S
Postsecondary teachers, engineering	65,000	66,500	56,000	66,000	68,000	56,000	60,000	60,000	S
Non-S&E occupations	78,000	85,000	58,900	80,000	86,000	59,000	66,000	71,000	59,500
Managers, administrators, etc	91,600	96,000	75,000	92,300	96,500	75,000	80,000	81,000	74,000
Health and related occupations	75,000	90,000	55,500	80,000	100,000	56,200	68,000	97,000	S
Teachers, except S&E postsecondary teachers	52,000	59,000	50,000	53,000	60,000	50,000	48,000	50,000	48,000
Social services and related occupations	41,000	40,000	42,000	41,000	40,000	42,000	S	S	S
Technologists, etc	60,000	62,000	44,900	56,000	58,000	S	S	S	S
Sales and marketing occupations	74,900	75,000	59,000	75,000	75,000	56,000	S	S	S
Other non-S&E occupations	52,000	52,000	52,000	51,000	51,000	52,000	S	S	S

See explanatory information and SOURCE at end of table.

Table 39. Median annual salaries of doctoral scientists and engineers, by occupation, race/ethnicity, and sex: 1997

Occupation	Asian or Pacific Islander			Hispanic			American Indian/Alaskan Native		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$65,000	$67,000	$51,000	$59,500	$65,000	$47,000	$56,000	$58,000	$50,000
Scientists	57,000	60,000	50,000	55,000	59,000	45,000	51,100	52,000	50,000
Computer and mathematical scientists	65,000	65,000	60,000	64,000	66,000	S	S	S	S
Computer/information scientists	72,500	75,000	70,000	78,200	80,000	S	S	S	S
Mathematical scientists	65,000	65,000	65,000	S	S	S	S	S	S
Postsecondary teachers, computer and mathematical sciences	49,400	50,000	45,000	50,000	55,000	S	S	S	S
Life and related scientists	45,000	50,000	37,000	50,000	56,000	42,000	54,000	S	S
Agricultural scientists	58,500	58,500	S	S	S	S	S	S	S
Biological scientists	38,000	40,000	35,000	51,000	59,000	35,000	S	S	S
Forestry and conservation scientists	S	S	S	S	S	S	S	S	S
Postsecondary teachers, life and related sciences	57,600	60,000	50,000	48,500	52,000	S	S	S	S
Physical and related scientists	60,000	60,000	60,000	60,000	60,000	41,000	S	S	S
Chemists, except biochemistry	65,000	65,000	62,000	60,000	60,000	S	S	S	S
Earth scientists	54,100	58,000	S	75,000	S	S	S	S	S
Physics and astronomers	63,000	62,000	67,000	60,000	S	S	S	S	S
Other physical scientists	S	S	S	S	S	S	S	S	S
Postsecondary teachers, physical and related sciences	51,000	52,000	44,300	51,000	54,000	S	S	S	S
Social scientists	52,000	54,000	48,000	55,000	56,000	45,000	48,000	S	S
Economists	61,000	55,000	S	S	S	S	S	S	S
Political scientists	S	S	S	S	S	S	S	S	S
Sociologists and anthropologists	S	S	S	S	S	S	S	S	S
S&T historians and other social scientists	S	S	S	S	S	S	S	S	S
Postsecondary teachers, social and related sciences	50,000	51,000	42,600	50,000	52,000	44,000	48,000	S	S
Psychologists	47,600	44,000	50,000	48,000	52,000	46,000	52,000	S	S
Psychologists	50,000	45,000	50,000	50,000	58,000	48,000	50,000	S	S
Postsecondary teachers, psychology	43,800	S	S	44,000	47,300	41,500	S	S	S
Engineers	70,000	70,000	65,000	68,000	69,000	S	S	S	S
Aerospace/aeronautical engineers	75,000	75,000	S	S	S	S	S	S	S
Chemical engineers	70,400	70,000	S	S	S	S	S	S	S
Civil and architectural engineers	60,000	61,000	S	S	S	S	S	S	S
Electric and related engineers	75,000	75,000	68,000	80,000	80,000	S	S	S	S
Industrial engineers	69,000	68,000	S	S	S	S	S	S	S
Mechanical engineers	70,000	70,000	S	S	S	S	S	S	S
Other engineers	70,000	70,000	60,000	70,000	71,000	S	S	S	S
Postsecondary teachers, engineering	66,500	66,500	S	60,000	60,000	S	S	S	S
Non-S&E occupations	78,000	82,000	55,000	75,000	80,000	53,000	60,000	60,000	S
Managers, administrators, etc	95,000	96,000	72,000	80,000	84,000	66,000	72,300	72,000	S
Health and related occupations	50,000	56,000	38,000	75,000	S	S	S	S	S
Teachers, except S&E postsecondary teachers	55,000	60,000	43,500	44,000	S	41,700	S	S	S
Social services and related occupations	S	S	S	S	S	S	S	S	S
Technologists, etc	76,000	76,000	S	S	S	S	S	S	S
Sales and marketing occupations	66,000	70,000	S	S	S	S	S	S	S
Other non-S&E occupations	75,000	78,000	S	S	S	S	S	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 40. Median annual salaries of doctoral scientists and engineers, by field of doctorate and sector of employment: 1997

Field of doctorate	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not for-profit	Federal government	State and local government	Other sector
Total	$65,000	$55,000	$48,000	$80,000	$75,000	$65,000	$71,000	$54,000	$90,000
Sciences	62,000	54,000	48,000	80,000	75,000	63,000	70,000	54,000	100,000
Computer and mathematical sciences	65,000	57,000	48,000	82,500	39,000	83,000	75,000	S	S
Computer/information sciences	72,000	57,000	S	85,000	S	86,600	70,000	S	S
Mathematical sciences	63,000	57,000	47,400	82,000	75,000	80,000	75,000	S	S
Biological and agricultural sciences	60,000	53,500	42,000	76,000	60,000	62,000	65,200	50,000	S
Agricultural/ food sciences	60,000	56,000	S	69,000	60,000	69,000	63,000	40,000	S
Biological sciences	60,000	53,000	42,000	79,000	70,000	62,000	66,000	53,000	S
Environmental life sciences	60,000	56,000	S	80,000	S	60,000	68,000	45,000	S
Health sciences	60,000	55,000	49,000	85,000	80,000	66,000	65,000	55,000	S
Physical and related sciences	70,000	54,300	43,100	79,000	80,000	71,500	75,300	50,900	S
Chemistry except biochemistry	70,500	51,000	43,500	79,000	70,000	70,000	71,100	50,000	S
Earth/atmos/ocean sciences	60,000	51,000	40,000	72,000	96,000	60,000	75,800	47,500	S
Physics and astronomy	73,000	61,600	43,100	80,000	82,000	77,500	78,000	80,000	S
Social sciences	58,000	54,000	48,000	89,900	52,000	68,000	72,600	54,500	100,000
Economics	69,000	62,000	S	100,000	50,000	74,000	80,000	64,000	100,000
Political and related sciences	58,000	53,000	52,000	96,000	100,000	64,000	85,000	65,000	S
Sociology	53,300	51,000	50,000	65,300	40,000	70,000	75,000	44,500	S
Other social sciences	52,000	50,000	46,000	74,000	60,000	61,000	61,000	51,500	S
Psychology	60,000	52,000	55,000	76,000	75,000	55,000	65,000	54,000	S
Engineering	75,000	68,000	42,000	80,000	80,000	80,500	78,000	53,800	80,000
Aerospace/aeronautical engineering	75,000	70,000	S	79,000	S	S	75,000	S	S
Chemical engineering	79,000	65,000	S	80,000	S	85,000	78,000	S	S
Civil/architectural engineering	69,000	63,000	S	80,000	S	55,000	86,000	49,000	S
Electrical/computer engineering	80,000	70,000	S	83,000	100,000	88,000	78,000	S	S
Materials/metallurgical engineering	75,000	65,000	S	78,000	S	S	75,000	S	S
Mechanical engineering	73,000	65,000	S	75,000	S	90,000	76,000	S	S
Other engineering	75,000	68,000	S	80,000	60,000	84,000	78,500	58,000	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 41. Median annual salaries of doctoral scientists and engineers, by occupation, and sector of employment: 1997

Occupation	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Total	$65,000	$55,000	$48,000	$80,000	$75,000	$65,000	$71,000	$54,000	$90,000
Scientists	60,000	52,000	48,000	75,000	75,000	60,000	68,400	51,000	80,000
Computer and mathematical scientists	66,000	56,000	48,000	78,000	50,000	74,200	69,500	45,000	S
Computer/information scientists	75,000	60,000	S	77,500	50,000	71,000	70,000	50,000	S
Mathematical scientists	71,000	58,500	S	80,000	S	80,000	69,000	S	S
Postsecondary teachers, computer and mathematical sciences	55,000	55,000	47,400	S	S	S	S	S	S
Life and related scientists	57,000	52,000	45,000	72,000	50,000	60,000	63,000	46,000	S
Agricultural scientists	60,500	54,000	S	67,000	42,000	68,000	63,000	39,000	S
Biological scientists	56,000	40,000	S	73,000	50,000	60,000	62,200	50,000	S
Forestry and conservation scientists	59,000	61,000	S	55,000	S	S	64,000	S	S
Postsecondary teachers, life and related sciences	56,000	58,000	45,000	S	S	S	S	S	S
Physical and related scientists	65,000	52,300	45,000	75,000	95,000	72,000	75,000	50,000	S
Chemists, except biochemistry	71,000	38,400	S	75,000	80,000	71,100	70,000	46,100	S
Earth scientists	68,000	49,000	S	71,000	S	67,000	75,000	48,000	S
Physics and astronomers	74,000	50,000	S	81,000	S	75,000	75,000	80,000	S
Other physical scientists	75,000	S	S	77,000	S	S	72,600	S	S
Postsecondary teachers, physical and related sciences	53,600	54,200	43,500	S	S	S	S	S	S
Social scientists	55,000	52,000	45,000	85,000	50,000	61,000	71,000	49,000	100,000
Economists	75,000	55,000	S	95,000	50,000	58,000	73,000	65,000	100,000
Political scientists	75,000	41,500	S	S	S	60,000	85,000	S	S
Sociologists and anthropologists	52,100	52,000	S	60,000	S	70,000	56,000	37,000	S
S&T historians and other social scientists	54,000	52,400	S	69,000	S	61,000	59,900	50,000	S
Postsecondary teachers, social and related sciences	52,000	52,000	45,000	S	S	S	S	S	S
Psychologists	56,000	50,000	52,000	70,000	75,000	52,000	61,900	54,000	S
Psychologists	60,000	48,000	54,500	70,000	75,000	52,000	61,900	54,000	S
Postsecondary teachers, psychology	50,000	50,300	45,000	S	S	S	S	S	S
Engineers	72,600	65,400	S	75,700	120,000	80,000	72,600	52,000	S
Aerospace/aeronautical engineers	79,500	100,000	S	80,000	S	73,000	78,000	S	S
Chemical engineers	74,500	52,000	S	75,000	S	S	69,500	S	S
Civil and architectural engineers	68,000	65,000	S	70,000	S	S	80,000	48,000	S
Electric and related engineers	80,000	75,000	S	80,000	175,000	88,000	72,600	S	S
Industrial engineers	72,000	S	S	72,000	S	S	S	S	S
Mechanical engineers	74,000	68,000	S	75,000	S	S	70,200	S	S
Other engineers	74,500	60,000	S	75,100	120,000	88,400	75,000	53,800	S
Postsecondary teachers, engineering	65,000	65,000	S	S	S	S	S	S	S
Non-S&E occupations	78,000	66,000	48,000	95,400	60,000	70,000	88,000	59,800	100,000
Managers, administrators, etc.	91,600	85,000	70,000	100,000	97,600	80,000	93,000	61,000	100,000
Health and related occupations	75,000	62,500	S	100,000	110,000	72,000	65,000	59,000	S
Teachers, except S&E postsecondary teachers	52,000	54,000	40,000	65,000	S	S	S	S	S
Social services and related occupations	41,000	42,000	46,000	S	S	35,000	S	S	S
Technologists, etc.	60,000	38,000	S	65,000	S	S	60,000	S	S
Sales and marketing occupations	74,900	S	S	75,000	65,000	S	S	S	S
Other non-S&E occupations	52,000	45,000	S	62,000	30,000	55,000	70,000	51,000	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 42. Median annual salaries of doctoral scientists and engineers, by field of doctorate and primary work activity: 1997

Field of doctorate	Total	R&D	Teaching	Management, sales, and administration	Computer applications	Other
Total	$65,000	$68,000	$52,000	$82,000	$70,000	$65,000
Sciences	62,000	65,000	50,000	80,000	69,000	65,000
Computer and mathematical sciences	65,000	75,000	52,000	93,000	74,300	70,000
Computer/information sciences	72,000	75,000	53,000	90,000	78,000	S
Mathematical sciences	63,000	75,000	50,300	93,100	67,000	69,200
Biological and agricultural sciences	60,000	59,000	50,000	78,000	59,500	67,000
Agricultural/ food sciences	60,000	60,000	52,000	72,000	60,000	60,000
Biological sciences	60,000	58,300	50,000	80,000	60,000	70,000
Environmental life sciences	60,000	60,000	54,000	85,000	S	52,000
Health sciences	60,000	66,000	50,000	75,000	S	65,000
Physical and related sciences	70,000	71,000	51,000	86,000	70,000	75,000
Chemistry except biochemistry	70,500	72,000	49,400	85,000	68,000	75,000
Earth/atmos/ocean sciences	60,000	65,000	50,000	84,000	58,000	65,000
Physics and astronomy	73,000	73,000	55,000	90,700	70,000	88,000
Social sciences	58,000	63,100	50,000	73,000	60,000	67,000
Economics	69,000	71,400	60,000	94,000	60,000	78,000
Political and related sciences	58,000	55,000	49,000	80,000	91,000	78,400
Sociology	53,300	58,000	47,000	70,000	54,000	56,500
Other social sciences	52,000	57,000	48,000	60,000	52,000	55,000
Psychology	60,000	63,000	50,000	68,500	70,900	60,000
Engineering	75,000	75,000	63,000	95,500	75,000	79,000
Aerospace/aeronautical engineering	75,000	69,000	72,300	96,000	78,000	79,000
Chemical engineering	79,000	75,000	60,000	100,000	75,000	85,000
Civil/architectural engineering	69,000	69,000	60,000	90,000	68,000	60,000
Electrical/computer engineering	80,000	78,000	68,000	100,000	77,500	79,000
Materials/metallurgical engineering	75,000	70,000	64,000	90,000	80,000	82,000
Mechanical engineering	73,000	72,800	60,000	99,000	69,500	75,000
Other engineering	75,000	75,000	62,000	86,000	75,000	85,000

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 43. Median annual salaries of doctoral scientists and engineers, by occupation and primary work activity: 1997

Occupation	Total	R&D	Teaching	Management, sales, and administration	Computer applications	Other
Total	$65,000	$68,000	$52,000	$82,000	$70,000	$65,000
Scientists	60,000	64,000	50,000	70,000	70,000	62,000
Computer and mathematical scientists	66,000	72,000	53,000	80,000	72,000	72,000
Computer/information scientists	75,000	80,000	S	85,000	72,000	77,500
Mathematical scientists	71,000	72,000	S	63,000	62,000	72,000
Postsecondary teachers, computer and mathematical sciences	55,000	65,000	52,800	70,000	45,000	65,000
Life and related scientists	57,000	58,000	50,000	70,000	55,000	63,400
Agricultural scientists	60,500	60,000	S	65,000	S	60,000
Biological scientists	56,000	53,400	S	72,000	53,000	67,000
Forestry and conservation scientists	59,000	58,000	S	S	S	S
Postsecondary teachers, life and related sciences	56,000	65,000	50,000	57,000	S	67,000
Physical and related scientists	65,000	70,000	50,000	75,000	68,000	72,000
Chemists, except biochemistry	71,000	70,000	S	75,000	63,400	77,500
Earth scientists	68,000	67,000	S	69,600	68,000	70,000
Physics and astronomers	74,000	72,000	S	80,000	75,000	83,000
Other physical scientists	75,000	77,800	S	S	S	73,000
Postsecondary teachers, physical and related sciences	53,600	66,000	50,000	70,000	S	62,000
Social scientists	55,000	60,600	50,000	67,000	54,000	71,000
Economists	75,000	77,000	S	74,000	72,000	80,000
Political scientists	75,000	44,000	S	S	S	S
Sociologists and anthropologists	52,100	55,000	S	52,000	S	65,800
S&T historians and other social scientists	54,000	54,800	S	S	S	S
Postsecondary teachers, social and related sciences	52,000	57,000	50,000	68,000	S	56,500
Psychologists	56,000	58,500	48,200	56,000	S	60,000
Psychologists	60,000	55,000	60,000	55,000	S	60,000
Postsecondary teachers, psychology	50,000	66,000	48,000	71,500	S	48,000
Engineers	72,600	75,000	63,000	85,000	72,600	72,000
Aerospace/aeronautical engineers	79,500	76,500	S	100,800	88,000	S
Chemical engineers	74,500	72,000	S	85,500	75,000	80,000
Civil and architectural engineers	68,000	65,000	S	89,400	63,000	70,000
Electric and related engineers	80,000	79,000	S	85,000	75,000	82,000
Industrial engineers	72,000	75,000	S	72,000	S	S
Mechanical engineers	74,000	72,700	S	79,000	66,000	85,000
Other engineers	74,500	73,000	S	85,000	71,000	70,000
Postsecondary teachers, engineering	65,000	70,000	63,000	78,200	S	57,500
Non-S&E occupations	78,000	85,000	51,000	88,000	67,000	70,000
Managers, administrators, etc	91,600	100,000	72,000	91,000	80,000	85,000
Health and related occupations	75,000	75,000	65,000	60,000	S	75,000
Teachers, except S&E postsecondary teachers	52,000	63,000	50,000	55,000	S	60,000
Social services and related occupations	41,000	53,000	35,000	40,000	S	42,000
Technologists, etc	60,000	65,000	S	56,000	60,000	60,000
Sales and marketing occupations	74,900	65,000	S	75,000	S	75,000
Other non-S&E occupations	52,000	56,000	S	42,000	45,000	56,400

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 44. Median annual salaries of doctoral scientists and engineers, by sector of employment, broad field of doctorate, and sex: 1997

Sector/field of doctorate	Total	Male	Female
All sectors:			
Total	$65,000	$70,000	$53,000
Sciences	62,000	66,000	52,000
Computer and information sciences	72,000	75,000	61,000
Mathematical sciences	63,000	65,000	52,000
Biological and agricultural sciences	60,000	63,000	50,000
Health sciences	60,000	71,000	55,000
Physical and related sciences	70,000	72,000	59,000
Social and related sciences	58,000	60,100	51,300
Psychology	60,000	64,000	52,000
Engineering	75,000	76,000	63,000
Universities and 4-year colleges:			
Total	55,000	60,000	46,100
Sciences	54,000	57,000	46,000
Computer and information sciences	57,000	57,000	54,000
Mathematical sciences	57,000	59,000	44,000
Biological and agricultural sciences	53,500	57,000	43,000
Health sciences	55,000	62,000	52,000
Physical and related sciences	54,300	57,600	42,000
Social and related sciences	54,000	56,200	47,200
Psychology	52,000	57,000	47,000
Engineering	68,000	69,100	55,000
Other educational institutions:			
Total	48,000	48,600	46,000
Sciences	48,000	49,000	46,000
Computer and information sciences	S	S	S
Mathematical sciences	47,400	48,000	S
Biological and agricultural sciences	42,000	46,000	39,700
Health sciences	49,000	S	48,000
Physical and related sciences	43,100	45,000	37,900
Social and related sciences	48,000	46,000	50,000
Psychology	55,000	57,000	52,000
Engineering	42,000	43,000	S
Private-for-profit:			
Total	80,000	80,000	70,000
Sciences	80,000	80,000	70,000
Computer and information sciences	85,000	85,000	75,000
Mathematical sciences	82,000	82,000	80,000
Biological and agricultural sciences	76,000	79,000	70,000
Health sciences	85,000	90,000	72,000
Physical and related sciences	79,000	80,000	70,800
Social and related sciences	89,900	95,000	68,000
Psychology	76,000	84,000	65,000
Engineering	80,000	80,000	70,000
Self-employed:			
Total	75,000	80,000	65,000
Sciences	75,000	80,000	67,000
Computer and information sciences	S	S	S
Mathematical sciences	75,000	39,000	S
Biological and agricultural sciences	60,000	60,000	60,000
Health sciences	80,000	80,000	S
Physical and related sciences	80,000	80,000	S
Social and related sciences	52,000	60,000	50,000
Psychology	75,000	85,000	68,000
Engineering	80,000	80,000	S

See explanatory information and SOURCE at end of table.

Table 44. Median annual salaries of doctoral scientists and engineers, by sector of employment, broad field of doctorate, and sex: 1997

Sector/field of doctorate	Total	Male	Female
Private not-for-profit:			
Total	$65,000	$70,000	$53,000
Sciences	63,000	68,000	53,000
Computer and information sciences	86,600	S	S
Mathematical sciences	80,000	84,000	S
Biological and agricultural sciences	62,000	67,500	47,000
Health sciences	66,000	70,000	63,000
Physical and related sciences	71,500	73,000	62,000
Social and related sciences	68,000	66,100	70,000
Psychology	55,000	62,000	50,000
Engineering	80,500	81,000	S
Federal government:			
Total	71,000	72,600	64,000
Sciences	70,000	71,100	64,000
Computer and information sciences	70,000	83,000	S
Mathematical sciences	75,000	75,000	S
Biological and agricultural sciences	65,200	68,000	60,000
Health sciences	65,000	70,000	60,000
Physical and related sciences	75,300	77,000	69,000
Social and related sciences	72,600	72,600	71,000
Psychology	65,000	65,000	64,100
Engineering	78,000	80,000	63,000
State and local government:			
Total	54,000	54,000	52,400
Sciences	54,000	54,500	52,000
Computer and information sciences	S	S	S
Mathematical sciences	S	S	S
Biological and agricultural sciences	50,000	51,300	45,000
Health sciences	55,000	59,100	55,000
Physical and related sciences	50,900	50,900	S
Social and related sciences	54,500	54,500	55,000
Psychology	54,000	55,000	53,000
Engineering	53,800	53,000	S
Other sector:			
Total	90,000	90,000	95,000
Sciences	100,000	100,000	95,000
Computer and information sciences	S	S	S
Mathematical sciences	S	S	S
Biological and agricultural sciences	S	S	S
Health sciences	S	S	S
Physical and related sciences	S	S	S
Social and related sciences	100,000	100,000	100,000
Psychology	S	S	S
Engineering	80,000	80,000	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 45. Median annual salaries of doctoral scientists and engineers, by sector of employment, broad occupation, and sex: 1997

Sector/occupation	Total	Male	Female
All Sectors:			
Total	$65,000	$70,000	$53,000
Scientists	60,000	63,000	50,000
Computer and information scientists	72,000	72,000	65,000
Mathematical scientists	59,000	60,000	50,000
Life and related scientists	57,000	60,000	47,500
Physical and related scientists	65,000	67,100	55,000
Social and related scientists	55,000	56,000	50,000
Psychologists	56,000	61,000	50,000
Engineers	72,600	73,400	63,000
Non-S&E occupations	78,000	85,000	58,900
University and 4-year colleges:			
Total	55,000	60,000	46,100
Scientists	52,000	55,000	44,000
Computer and information scientists	60,000	60,000	50,000
Mathematical scientists	53,900	55,000	43,000
Life and related scientists	52,000	56,000	42,000
Physical and related scientists	52,300	54,300	42,000
Social and related scientists	52,000	54,500	46,000
Psychologists	50,000	54,500	44,500
Engineers	65,400	67,400	55,000
Non-S&E occupations	66,000	75,000	52,000
Other educational institutions:			
Total	48,000	48,600	46,000
Scientists	48,000	48,600	45,000
Computer and information scientists	S	S	S
Mathematical scientists	47,700	47,700	S
Life and related scientists	45,000	48,000	42,300
Physical and related scientists	45,000	45,600	34,000
Social and related scientists	45,000	45,000	60,000
Psychologists	52,000	54,000	50,000
Engineers	S	S	S
Non-S&E occupations	48,000	49,000	48,000
Private-for-profit:			
Total	80,000	80,000	70,000
Scientists	75,000	77,000	67,500
Computer and information scientists	77,500	78,000	73,000
Mathematical scientists	80,000	81,000	72,000
Life and related scientists	72,000	73,000	65,000
Physical and related scientists	75,000	77,000	69,000
Social and related scientists	85,000	95,000	66,000
Psychologists	70,000	80,000	60,000
Engineers	75,700	77,000	70,000
Non-S&E occupations	95,400	100,000	78,000
Self-employed:			
Total	75,000	80,000	65,000
Scientists	75,000	80,000	67,000
Computer and information scientists	50,000	50,000	S
Mathematical scientists	S	S	S
Life and related scientists	50,000	50,000	S
Physical and related scientists	95,000	96,000	S
Social and related scientists	50,000	50,000	S
Psychologists	75,000	85,000	68,000
Engineers	120,000	120,000	S
Non-S&E occupations	60,000	60,000	50,000

See explanatory information and SOURCE at end of table.

Table 45. Median annual salaries of doctoral scientists and engineers, by sector of employment, broad occupation, and sex 1997

Sector/occupation	Total	Male	Female
Private not-for-profit:			
Total	$65,000	$70,000	$53,000
Scientists	60,000	65,000	50,000
Computer and information scientists	71,000	71,000	S
Mathematical scientists	80,000	88,000	S
Life and related scientists	60,000	61,000	40,000
Physical and related scientists	72,000	75,000	S
Social and related scientists	61,000	56,000	71,000
Psychologists	52,000	60,000	47,400
Engineers	80,000	80,500	S
Non-S&E occupations	70,000	74,400	60,000
Federal government:			
Total	71,000	72,600	64,000
Scientists	68,400	70,000	61,000
Computer and information scientists	70,000	70,000	S
Mathematical scientists	69,000	70,000	60,000
Life and related scientists	63,000	65,000	59,000
Physical and related scientists	75,000	75,000	63,400
Social and related scientists	71,000	70,500	71,000
Psychologists	61,900	62,000	61,400
Engineers	72,600	73,000	65,000
Non-S&E occupations	88,000	90,000	83,000
State and local government:			
Total	54,000	54,000	52,400
Scientists	51,000	52,000	50,200
Computer and information scientists	50,000	S	S
Mathematical scientists	S	S	S
Life and related scientists	46,000	46,000	45,000
Physical and related scientists	50,000	50,900	S
Social and related scientists	49,000	49,000	50,200
Psychologists	54,000	55,000	52,000
Engineers	52,000	51,000	S
Non-S&E occupations	59,800	60,000	55,500
Other sector:			
Total	90,000	90,000	95,000
Scientists	80,000	80,000	90,000
Computer and information scientists	S	S	S
Mathematical scientists	S	S	S
Life and related scientists	S	S	S
Physical and related scientists	S	S	S
Social and related scientists	100,000	100,000	S
Psychologists	S	S	S
Engineers	S	S	S
Non-S&E occupations	100,000	100,000	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 46. Median annual salaries of doctoral scientists and engineers, by sector of employment, broad field of doctorate, and race/ethnicity: 1997

Sector/field of doctorate	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/ Alaskan Native
All Sectors:						
Total	$65,000	$65,500	$59,000	$65,000	$59,500	$56,000
Sciences	62,000	63,500	57,000	57,600	56,000	54,000
Computer and information sciences	72,000	72,000	S	72,000	S	S
Mathematical sciences	63,000	65,000	63,000	55,000	54,000	S
Biological and agricultural sciences	60,000	60,800	54,000	47,000	54,000	60,000
Health sciences	60,000	60,000	58,000	70,000	62,000	S
Physical and related sciences	70,000	72,000	67,000	65,000	60,000	78,000
Social and related sciences	58,000	59,400	55,000	54,000	54,000	48,000
Psychology	60,000	60,000	55,000	50,000	50,000	52,000
Engineering	75,000	78,000	68,600	72,000	70,000	S
Universities and 4-year colleges:						
Total	55,000	57,000	50,000	50,000	50,000	49,000
Sciences	54,000	55,000	50,000	45,000	49,800	49,000
Computer and information sciences	57,000	55,000	S	60,000	S	S
Mathematical sciences	57,000	60,000	53,000	45,000	46,000	S
Biological and agricultural sciences	53,500	55,000	48,000	37,400	48,500	S
Health sciences	55,000	55,000	53,800	54,000	64,000	S
Physical and related sciences	54,300	56,000	60,000	43,000	57,600	S
Social and related sciences	54,000	55,000	50,000	50,000	50,000	48,000
Psychology	52,000	52,100	46,000	43,300	45,300	S
Engineering	68,000	70,000	60,000	65,000	59,700	S
Other educational institutions:						
Total	48,000	47,700	57,000	47,600	48,000	S
Sciences	48,000	48,000	57,000	48,000	49,000	S
Computer and information sciences	S	S	S	S	S	S
Mathematical sciences	47,400	47,700	S	S	S	S
Biological and agricultural sciences	42,000	42,300	S	S	S	S
Health sciences	49,000	50,000	S	S	S	S
Physical and related sciences	43,100	41,000	S	50,000	S	S
Social and related sciences	48,000	48,000	S	S	S	S
Psychology	55,000	57,000	57,000	S	S	S
Engineering	42,000	S	S	S	S	S
Private-for-profit:						
Total	80,000	80,000	75,000	72,800	75,000	85,000
Sciences	80,000	80,000	80,000	70,300	75,000	85,000
Computer and information sciences	85,000	85,000	S	85,000	S	S
Mathematical sciences	82,000	85,000	S	69,200	S	S
Biological and agricultural sciences	76,000	79,000	80,000	70,000	68,000	S
Health sciences	85,000	87,000	S	76,600	S	S
Physical and related sciences	79,000	80,000	70,000	70,000	75,000	S
Social and related sciences	89,900	91,000	S	67,000	200,000	S
Psychology	76,000	77,000	80,000	S	60,000	S
Engineering	80,000	85,000	73,500	75,000	75,000	S
Self-employed:						
Total	75,000	75,000	90,000	65,000	60,000	S
Sciences	75,000	75,000	90,000	65,000	70,000	S
Computer and information sciences	S	S	S	S	S	S
Mathematical sciences	75,000	39,000	S	S	S	S
Biological and agricultural sciences	60,000	70,000	S	S	S	S
Health sciences	80,000	80,000	S	S	S	S
Physical and related sciences	80,000	80,000	S	S	S	S
Social and related sciences	52,000	52,000	S	S	S	S
Psychology	75,000	75,000	S	S	S	S
Engineering	80,000	91,000	S	S	S	S

See explanatory information and SOURCE at end of table.

Table 46. Median annual salaries of doctoral scientists and engineers, by sector of employment, broad field of doctorate, and race/ethnicity 1997

Sector/field of doctorate	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/ Alaskan Native
Private not-for-profit:						
Total	$65,000	$65,000	$60,000	$60,000	$66,000	S
Sciences	63,000	64,000	60,000	54,000	66,000	S
Computer and information sciences	86,600	S	S	S	S	S
Mathematical sciences	80,000	80,000	S	S	S	S
Biological and agricultural sciences	62,000	65,000	S	38,000	S	S
Health sciences	66,000	67,000	S	S	S	S
Physical and related sciences	71,500	73,000	S	70,000	S	S
Social and related sciences	68,000	68,000	66,000	S	S	S
Psychology	55,000	56,000	55,000	S	52,000	S
Engineering	80,500	84,000	S	72,000	S	S
Federal government:						
Total	71,000	71,000	70,000	70,000	66,700	S
Sciences	70,000	70,000	70,000	66,200	66,200	S
Computer and information sciences	70,000	71,000	S	S	S	S
Mathematical sciences	75,000	78,000	S	S	S	S
Biological and agricultural sciences	65,200	66,000	S	58,000	S	S
Health sciences	65,000	65,000	S	S	S	S
Physical and related sciences	75,300	76,000	S	71,000	75,000	S
Social and related sciences	72,600	74,200	S	61,000	S	S
Psychology	65,000	65,000	S	S	S	S
Engineering	78,000	78,500	S	76,000	S	S
State and local government:						
Total	54,000	54,000	55,000	50,000	50,400	S
Sciences	54,000	54,000	55,000	50,000	50,400	S
Computer and information sciences	S	S	S	S	S	S
Mathematical sciences	S	S	S	S	S	S
Biological and agricultural sciences	50,000	50,000	S	46,000	S	S
Health sciences	55,000	55,000	S	S	S	S
Physical and related sciences	50,900	52,000	S	50,000	S	S
Social and related sciences	54,500	55,000	S	46,000	S	S
Psychology	54,000	54,000	55,000	S	S	S
Engineering	53,800	62,500	S	52,000	S	S
Other sectors:						
Total	90,000	90,000	S	72,100	S	S
Sciences	100,000	95,000	S	S	S	S
Computer and information sciences	S	S	S	S	S	S
Mathematical sciences	S	S	S	S	S	S
Biological and agricultural sciences	S	S	S	S	S	S
Health sciences	S	S	S	S	S	S
Physical and related sciences	S	S	S	S	S	S
Social and related sciences	100,000	100,000	S	S	S	S
Psychology	S	S	S	S	S	S
Engineering	80,000	S	S	S	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 47. Median annual salaries of doctoral scientists and engineers, by sector of employment, broad occupation, and race/ethnicity: 1997

Sector/occupation	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/ Alaskan Native
All Sectors:						
Total	$65,000	$65,500	$59,000	$65,000	$59,500	$56,000
Scientists	60,000	60,000	54,000	57,000	55,000	51,100
Computer and information scientists	72,000	72,000	63,000	70,000	76,800	S
Mathematical scientists	59,000	60,000	69,000	50,000	52,500	S
Life and related scientists	57,000	59,000	51,600	45,000	50,000	54,000
Physical and related scientists	65,000	67,000	61,300	60,000	60,000	S
Social and related scientists	55,000	55,000	50,000	52,000	55,000	48,000
Psychologists	56,000	57,300	50,000	47,600	48,000	52,000
Engineers	72,600	75,000	67,000	70,000	68,000	S
Non-S&E occupations	78,000	80,000	66,000	78,000	75,000	60,000
Universities and 4-year colleges:						
Total	55,000	57,000	50,000	50,000	50,000	49,000
Scientists	52,000	54,000	48,000	44,000	48,000	49,000
Computer and information scientists	60,000	60,000	S	60,000	S	S
Mathematical scientists	53,900	56,000	53,000	45,000	46,000	S
Life and related scientists	52,000	54,000	45,500	35,000	45,400	S
Physical and related scientists	52,300	54,000	47,000	45,000	51,000	S
Social and related scientists	52,000	53,000	50,000	50,000	50,000	48,000
Psychologists	50,000	50,000	45,000	43,000	45,300	S
Engineers	65,400	68,000	60,000	65,000	60,000	S
Non-S&E occupations	66,000	68,000	58,000	56,000	57,000	53,400
Other educational institutions:						
Total	48,000	47,700	57,000	47,600	48,000	S
Scientists	48,000	48,000	S	48,000	S	S
Computer and information scientists	S	S	S	S	S	S
Mathematical scientists	47,700	50,000	S	S	S	S
Life and related scientists	45,000	45,000	S	S	S	S
Physical and related scientists	45,000	42,000	S	52,000	S	S
Social and related scientists	45,000	45,000	S	S	S	S
Psychologists	52,000	52,000	S	S	S	S
Engineers	S	S	S	S	S	S
Non-S&E occupations	48,000	47,000	68,500	37,000	S	S
Private-for-profit:						
Total	80,000	80,000	75,000	72,800	75,000	85,000
Scientists	75,000	77,000	73,000	70,000	71,000	71,000
Computer and information scientists	77,500	80,000	S	74,000	80,000	S
Mathematical scientists	80,000	82,500	S	69,000	S	S
Life and related scientists	72,000	73,000	S	70,000	65,000	S
Physical and related scientists	75,000	78,000	70,000	67,000	67,000	S
Social and related scientists	85,000	85,000	S	65,000	S	S
Psychologists	70,000	70,000	70,000	S	S	S
Engineers	75,700	80,000	73,500	72,000	72,000	S
Non-S&E occupations	95,400	97,000	100,000	90,000	80,000	S
Self-employed:						
Total	75,000	75,000	90,000	65,000	60,000	S
Scientists	75,000	75,000	S	70,500	60,000	S
Computer and information scientists	50,000	50,000	S	S	S	S
Mathematical scientists	S	S	S	S	S	S
Life and related scientists	50,000	50,000	S	S	S	S
Physical and related scientists	95,000	80,000	S	S	S	S
Social and related scientists	50,000	50,000	S	S	S	S
Psychologists	75,000	75,000	S	S	S	S
Engineers	120,000	120,000	S	S	S	S
Non-S&E occupations	60,000	60,000	S	60,000	S	S

See explanatory information and SOURCE at end of table.

Table 47. Median annual salaries of doctoral scientists and engineers, by sector of employment, broad occupation, and race/ethnicity 1997

Sector/occupation	Total	White	Black	Asian or Pacific Islander	Hispanic	American Indian/ Alaskan Native
Private not-for-profit:						
Total	$65,000	$65,000	$60,000	$60,000	$66,000	S
Scientists	60,000	60,000	60,000	56,000	52,000	S
Computer and information scientists	71,000	70,000	S	82,500	S	S
Mathematical scientists	80,000	80,000	S	S	S	S
Life and related scientists	60,000	60,000	S	35,000	S	S
Physical and related scientists	72,000	74,000	S	70,000	S	S
Social and related scientists	61,000	63,000	S	S	S	S
Psychologists	52,000	52,500	S	S	S	S
Engineers	80,000	81,000	S	68,000	S	S
Non-S&E occupations	70,000	70,000	66,000	60,000	75,000	S
Federal government:						
Total	71,000	71,000	70,000	70,000	66,700	S
Scientists	68,400	69,000	68,700	65,600	63,000	S
Computer and information scientists	70,000	68,000	S	75,000	S	S
Mathematical scientists	69,000	71,000	S	S	S	S
Life and related scientists	63,000	65,000	S	57,000	S	S
Physical and related scientists	75,000	75,000	S	71,000	75,000	S
Social and related scientists	71,000	72,000	S	S	S	S
Psychologists	61,900	61,500	S	S	S	S
Engineers	72,600	75,000	S	69,800	S	S
Non-S&E occupations	88,000	88,500	80,000	80,000	S	S
State and local government:						
Total	54,000	54,000	55,000	50,000	50,400	S
Scientists	51,000	52,000	50,000	46,000	S	S
Computer and information scientists	50,000	45,000	S	S	S	S
Mathematical scientists	S	S	S	S	S	S
Life and related scientists	46,000	45,500	S	S	S	S
Physical and related scientists	50,000	50,900	S	S	S	S
Social and related scientists	49,000	50,200	S	46,000	S	S
Psychologists	54,000	54,000	S	S	S	S
Engineers	52,000	53,000	S	52,000	S	S
Non-S&E occupations	59,800	59,000	66,000	60,000	S	S
Other sector:						
Total	90,000	90,000	S	72,100	S	S
Scientists	80,000	90,000	S	S	S	S
Computer and information scientists	S	S	S	S	S	S
Mathematical scientists	S	S	S	S	S	S
Life and related scientists	S	S	S	S	S	S
Physical and related scientists	S	S	S	S	S	S
Social and related scientists	100,000	100,000	S	S	S	S
Psychologists	S	S	S	S	S	S
Engineers	S	S	S	S	S	S
Non-S&E occupations	100,000	100,000	S	S	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 48. Median annual salaries of doctoral scientists and engineers, by demographic characteristics, race/ethnicity, and sex: 1997

Characteristics	Total			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$65,000	$70,000	$53,000	$65,500	$70,000	$53,000	$59,000	$62,000	$52,000
Age:									
Under 35	47,000	50,000	39,000	45,000	48,000	38,700	48,000	48,000	46,000
35-39	57,000	60,000	50,000	57,000	60,000	49,000	50,000	52,000	46,000
40-44	63,000	66,000	55,000	64,000	67,000	55,000	50,000	50,000	45,000
45-49	70,000	73,000	59,000	70,000	73,000	59,000	68,000	70,000	65,000
50-54	74,000	77,000	58,000	74,200	77,900	58,200	65,000	70,000	55,600
55-59	75,000	78,000	59,000	76,000	80,000	59,000	66,000	68,500	S
60-64	75,000	78,000	58,800	75,000	78,500	58,800	69,000	70,000	S
65-75	71,000	74,000	60,000	71,000	74,000	60,000	56,000	56,000	S
Citizenship status:									
U.S. total	67,000	70,000	54,000	66,000	70,000	53,500	60,000	65,000	53,000
U.S. native	65,000	70,000	53,000	65,500	70,000	53,000	59,000	63,000	53,000
U.S. naturalized	72,000	75,000	58,000	71,600	75,000	56,000	69,000	72,000	50,000
Non-U.S. total	55,000	58,000	43,000	60,000	60,000	46,200	50,000	50,000	S
Non-U.S., permanent resident	57,200	60,000	45,000	60,000	62,000	47,800	50,000	50,000	S
Non-U.S., temporary resident	46,000	49,000	37,000	45,000	48,000	40,000	37,000	41,000	S
Employer location:									
New England	65,000	70,000	50,000	67,000	71,000	50,000	55,000	60,000	S
Middle Atlantic	70,000	73,000	58,000	70,000	74,000	58,000	65,000	66,000	56,000
East North Central	63,000	67,500	50,000	64,000	68,000	50,000	54,900	60,000	44,800
West North Central	57,000	60,000	47,200	57,500	60,000	48,500	53,000	56,000	S
South Atlantic	67,000	70,000	55,000	69,000	72,000	55,000	60,000	63,000	55,000
East South Central	58,600	60,000	50,000	60,000	62,000	50,000	53,000	56,500	46,000
West South Central	61,000	65,000	50,000	62,500	66,400	50,000	50,000	50,000	49,000
Mountain	65,000	67,000	49,000	65,000	70,000	49,000	64,000	64,000	S
Pacific	70,000	72,600	57,000	70,000	72,300	59,000	61,300	70,000	51,600
U.S. territories and other areas	50,000	50,000	42,000	60,000	60,000	S	S	S	S
Place of birth:									
U.S.	65,000	70,000	53,000	65,900	70,000	53,000	59,000	63,000	53,000
Europe	65,000	68,400	50,000	65,000	68,400	50,000	S	S	S
Asia	65,000	67,000	53,000	65,000	68,000	55,000	S	S	S
North America	65,000	70,000	53,000	66,000	70,000	55,000	S	S	S
Central America	56,000	57,000	48,000	50,000	50,000	S	S	S	S
Caribbean	67,000	70,000	48,000	S	S	S	67,000	68,000	53,000
South America	59,000	69,000	49,600	55,000	55,000	53,000	S	S	S
Africa	62,000	63,000	50,000	65,000	70,000	52,000	55,000	56,000	S
Oceania	75,000	75,000	S	75,000	75,000	S	S	S	S

See explanatory information and SOURCE at end of table.

Table 48. Median annual salaries of doctoral scientists and engineers, by demographic characteristics, race/ethnicity, and sex 1997

Characteristics	Asian or Pacific Islander			Hispanic			American Indian/Alaskan Native		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$65,000	$67,000	$51,000	$59,500	$65,000	$47,000	$56,000	$58,000	$50,000
Age:									
Under 35	54,000	57,000	40,000	42,000	43,500	38,000	S	S	S
35-39	60,000	60,000	53,000	56,000	58,000	53,000	S	S	S
40-44	65,000	68,000	57,000	57,700	60,000	50,000	45,200	S	S
45-49	73,200	75,000	61,600	60,000	66,500	48,000	63,000	S	S
50-54	77,500	80,000	60,000	70,000	73,000	47,000	67,000	72,000	S
55-59	75,000	75,000	60,000	70,000	70,000	S	49,000	49,000	S
60-64	75,000	78,000	51,000	68,700	69,000	S	S	S	S
65-75	74,000	74,000	S	S	S	S	S	S	S
Citizenship status:									
U.S. total	72,800	75,000	60,000	60,000	66,000	48,000	56,000	60,000	50,000
U.S. native	65,000	70,000	50,000	58,000	65,000	49,000	56,000	60,000	50,000
U.S. naturalized	75,000	75,000	63,000	65,000	70,000	46,000	S	S	S
Non-U.S. total	55,000	57,000	43,000	55,000	57,000	36,500	S	S	S
Non-U.S., permanent resident	57,000	60,000	45,000	58,000	60,000	44,000	S	S	S
Non-U.S., temporary resident	47,000	50,000	37,000	37,000	39,000	S	S	S	S
Employer location:									
New England	58,000	64,000	40,000	63,200	70,000	S	S	S	S
Middle Atlantic	70,000	72,000	60,000	67,800	70,000	55,000	S	S	S
East North Central	63,000	65,000	50,000	62,000	67,000	48,000	49,000	S	S
West North Central	55,000	57,000	39,000	56,000	56,000	S	S	S	S
South Atlantic	65,000	66,700	50,000	60,000	65,000	49,600	58,000	S	S
East South Central	54,000	55,000	43,000	60,000	60,000	S	S	S	S
West South Central	60,000	60,000	56,000	53,000	60,000	44,000	49,000	49,000	S
Mountain	60,000	60,000	50,000	52,000	58,900	S	60,000	63,000	S
Pacific	70,000	73,000	55,000	60,000	78,000	54,000	56,000	S	S
U.S. territories and other areas	50,000	S	S	45,000	48,000	40,000	S	S	S
Place of birth:									
U.S.	65,000	70,000	50,000	56,000	64,000	48,000	56,000	60,000	50,000
Europe	54,000	S	S	70,000	70,000	S	S	S	S
Asia	65,000	67,000	52,000	S	S	S	S	S	S
North America	S	S	S	S	S	S	S	S	S
Central America	S	S	S	57,000	60,000	48,000	S	S	S
Caribbean	S	S	S	64,000	72,000	45,300	S	S	S
South America	S	S	S	60,000	70,000	46,800	S	S	S
Africa	S	S	S	S	S	S	S	S	S
Oceania	S	S	S	S	S	S	S	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 49. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and citizenship status: 1997

Characteristics	Total	U.S. Citizen			Non-U.S. Citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Total	$65,000	$67,000	$65,000	$72,000	$55,000	$57,200	$46,000
Sex:							
Men	70,000	70,000	70,000	75,000	58,000	60,000	49,000
Women	53,000	54,000	53,000	58,000	43,000	45,000	37,000
Race/ethnicity:							
White	65,500	66,000	65,500	71,600	60,000	60,000	45,000
Black	59,000	60,000	59,000	69,000	50,000	50,000	S
Asian or Pacific Islander	65,000	72,800	65,000	75,000	55,000	57,000	47,000
Hispanic	59,500	60,000	58,000	65,000	55,000	58,000	37,000
American Indian/Alaskan Native	56,000	56,000	56,000	S	S	S	S
Age:							
Under 35	47,000	45,000	44,400	52,000	51,300	55,000	48,000
35-39	57,000	57,800	56,000	67,000	55,000	57,000	46,000
40-44	63,000	65,000	63,000	70,000	56,000	58,000	40,000
45-49	70,000	70,000	70,000	75,000	58,000	59,000	S
50-54	74,000	75,000	73,400	80,000	62,500	62,500	S
55-59	75,000	75,000	75,000	75,000	65,000	65,000	S
60-64	75,000	75,000	75,000	79,000	68,800	68,800	S
65-75	71,000	72,000	70,100	75,900	62,000	62,000	S
Employer location:							
New England	65,000	67,500	67,000	71,600	51,000	54,000	36,500
Middle Atlantic	70,000	70,000	70,000	76,000	62,000	63,000	50,000
East North Central	63,000	65,000	63,000	72,000	55,000	57,800	45,000
West North Central	57,000	58,000	57,000	65,000	48,000	49,800	37,000
South Atlantic	67,000	69,000	68,500	70,000	50,000	54,000	40,000
East South Central	58,600	60,000	60,000	60,000	43,200	43,300	S
West South Central	61,000	62,400	62,200	64,100	56,000	58,300	50,000
Mountain	65,000	65,000	65,000	69,500	50,000	52,000	50,000
Pacific	70,000	70,000	70,000	78,000	61,300	65,000	51,200
U.S. territories and other areas	50,000	50,000	50,000	54,000	37,000	S	S
Field of doctorate:							
Sciences	62,000	64,000	63,000	69,000	49,000	51,000	37,000
Computer and mathematical sciences	65,000	68,000	68,000	65,600	57,000	60,000	50,000
Computer and information sciences	72,000	75,000	72,000	80,000	70,000	70,000	66,000
Mathematical sciences	63,000	65,000	66,000	63,000	45,000	45,000	43,000
Biological and agricultural sciences	60,000	61,000	60,000	66,000	35,000	38,000	30,000
Agricultural and food sciences	60,000	61,000	61,000	61,500	45,000	49,800	S
Biological sciences	60,000	61,000	60,000	67,000	34,000	35,000	29,500
Environmental life sciences	60,000	60,000	60,000	69,500	39,700	S	S

See explanatory information and SOURCE at end of table.

Table 49. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and citizenship status: 1997

Characteristics	Total	U.S. Citizen			Non-U.S. Citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Health sciences	$60,000	$61,000	$60,000	$77,000	$58,000	$58,000	$52,000
Physical and related sciences	70,000	72,000	72,000	73,000	55,000	56,200	35,800
Chemistry, except biochemistry	70,500	72,900	73,000	72,000	56,000	57,200	27,000
Earth/atmos/ocean sciences	60,000	62,000	62,000	60,000	48,000	48,000	S
Physics and astronomy	73,000	75,000	75,000	76,000	55,000	60,000	39,800
Social sciences	58,000	59,000	58,000	64,000	50,000	53,000	45,000
Economics	69,000	70,000	70,000	66,000	62,000	61,000	62,500
Political and related sciences	58,000	60,000	60,000	68,000	41,000	44,000	S
Sociology	53,300	54,000	54,000	54,000	39,400	39,400	S
Other social sciences	52,000	52,000	52,000	61,000	43,500	48,000	42,000
Psychology	60,000	60,000	60,000	55,000	50,000	52,000	S
Engineering	75,000	80,000	79,500	80,000	65,000	65,000	59,700
Aerospace/aeronautical engineering	75,000	78,500	79,000	76,000	56,900	59,100	S
Chemical engineering	79,000	81,000	80,000	81,800	66,000	70,000	63,000
Civil/architectural engineering	69,000	72,000	70,000	75,900	52,000	55,000	47,000
Electrical/computer engineering	80,000	83,000	84,000	80,000	70,000	70,000	67,500
Materials/metallurgical engineering	75,000	78,600	78,500	80,000	63,000	65,000	51,000
Mechanical engineering	73,000	75,000	75,000	76,000	63,000	65,000	51,000
Other engineering	75,000	77,900	78,000	77,000	59,000	60,000	55,000
Place of birth:							
U.S.	65,000	65,000	65,000	55,000	46,500	70,000	S
Europe	65,000	70,000	59,000	70,000	60,000	60,000	43,000
Asia	65,000	74,000	62,000	75,000	55,000	57,000	47,000
North America	65,000	70,000	62,000	71,600	60,000	65,000	41,000
Central America	56,000	60,000	60,000	60,000	49,000	55,000	S
Caribbean	67,000	68,000	S	68,000	62,500	62,500	S
South America	59,000	65,000	55,000	65,000	55,000	56,000	48,000
Africa	62,000	72,000	72,000	72,000	49,500	48,000	60,000
Oceania	75,000	80,000	S	85,000	70,000	70,000	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 50. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and sector of employment: 1997

Characteristics	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Total	$65,000	$55,000	$48,000	$80,000	$75,000	$65,000	$71,000	$54,000	$90,000
Sex:									
Men	70,000	60,000	48,600	80,000	80,000	70,000	72,600	54,000	90,000
Women	53,000	46,100	46,000	70,000	65,000	53,000	64,000	52,400	95,000
Race/ethnicity:									
White	65,500	57,000	47,700	80,000	75,000	65,000	71,000	54,000	90,000
Black	59,000	50,000	57,000	75,000	90,000	60,000	70,000	55,000	S
Asian or Pacific Islander	65,000	50,000	47,600	72,800	65,000	60,000	70,000	50,000	72,100
Hispanic	59,500	50,000	48,000	75,000	60,000	66,000	66,700	50,400	S
American Indian/Alaskan Native	56,000	49,000	S	85,000	S	S	S	S	S
Age:									
Under 35	47,000	36,000	33,000	65,000	45,000	44,000	47,400	43,000	S
35-39	57,000	45,000	43,500	72,000	70,000	55,000	60,000	50,000	80,000
40-44	63,000	53,000	45,000	80,000	80,000	61,000	66,000	53,000	95,000
45-49	70,000	58,500	48,000	90,000	75,000	75,000	72,000	55,000	80,000
50-54	74,000	65,000	50,300	90,000	80,000	76,000	80,000	55,000	72,100
55-59	75,000	69,600	54,000	93,000	80,000	80,000	84,000	60,000	100,000
60-64	75,000	70,000	52,000	89,500	80,000	70,000	85,000	54,600	S
65-75	71,000	74,000	54,000	76,000	35,000	55,000	85,000	54,000	S
Citizenship status:									
U.S. total	67,000	57,000	48,000	80,000	75,000	66,000	72,000	54,000	80,000
U.S. native	65,000	56,000	48,000	80,000	75,000	65,000	71,000	54,000	80,000
U.S. naturalized	72,000	63,000	43,000	80,000	70,000	75,000	73,200	53,000	75,000
Non-U.S. total	55,000	43,000	45,000	67,000	70,000	49,000	48,000	47,000	100,000
Non-U.S., permanent resident	57,200	45,000	48,000	68,000	70,000	49,000	50,000	48,000	90,000
Non-U.S., temporary resident	46,000	34,000	S	63,000	S	43,000	46,000	S	S
Employer location:									
New England	65,000	56,000	49,000	80,000	80,000	60,000	70,000	54,000	S
Middle Atlantic	70,000	57,700	58,000	83,000	80,000	66,000	69,000	56,400	S
East North Central	63,000	55,000	50,000	77,000	70,000	60,000	67,000	53,000	S
West North Central	57,000	51,500	45,000	72,000	60,000	62,000	61,500	48,000	S
South Atlantic	67,000	56,000	45,100	78,200	60,000	70,000	75,000	53,000	100,000
East South Central	58,600	54,000	38,400	74,900	60,000	50,000	66,200	48,000	S
West South Central	61,000	54,000	41,000	75,000	80,000	60,000	65,000	50,000	S
Mountain	65,000	55,000	45,000	76,000	65,000	66,000	71,000	48,000	S
Pacific	70,000	60,000	48,000	81,000	75,000	70,800	70,000	55,000	S
U.S. territories and other areas	50,000	45,600	S	70,000	S	S	S	S	S

See explanatory information and SOURCE at end of table.

Table 50. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and sector of employment 1997

Characteristics	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Place of birth:									
U.S.	$65,000	$56,000	$48,000	$80,500	$75,000	$65,000	$71,100	$54,000	$80,000
Europe	65,000	57,000	50,000	75,000	75,000	70,000	65,800	50,000	S
Asia	65,000	50,000	43,000	74,000	65,000	61,000	70,000	50,000	75,000
North America	65,000	53,000	S	85,000	69,000	56,700	S	74,000	S
Central America	56,000	55,000	S	67,000	S	S	S	S	S
Caribbean	67,000	50,000	S	72,000	S	S	S	S	S
South America	59,000	50,000	S	75,000	S	S	S	S	S
Africa	62,000	50,000	S	80,000	S	66,000	63,400	S	S
Oceania	75,000	70,000	S	75,000	S	S	S	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 51. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and primary work activity: 1997

Characteristics	Total	Research and development					Teaching	Management, sales, and administration	Computer applications	Professional services	Other activities
		Total	Applied research	Basic research	Development	Design					
Total	$65,000	$68,000	$70,000	$57,000	$75,000	$75,000	$52,000	$82,000	$70,000	$65,000	$65,000
Sex:											
Men	70,000	70,000	72,000	60,000	77,500	75,000	55,000	86,000	71,000	72,000	70,000
Women	53,000	55,000	60,000	43,000	68,000	65,000	45,000	65,000	60,000	55,000	58,000
Race/ethnicity:											
White	65,500	70,000	70,000	60,000	80,000	75,000	52,000	84,000	72,000	65,000	67,000
Black	59,000	62,500	65,000	50,000	70,000	S	50,000	72,000	63,000	62,000	65,000
Asian or Pacific Islander	65,000	65,000	65,000	42,000	71,000	70,000	51,000	82,000	70,000	60,000	62,000
Hispanic	59,500	60,000	65,000	52,000	75,000	S	49,000	75,000	70,000	60,000	60,000
American Indian/Alaskan Native	56,000	60,000	53,000	S	S	S	48,000	72,000	S	58,000	S
Age:											
Under 35	47,000	48,000	55,000	32,000	67,000	65,000	38,000	60,000	65,000	41,000	48,000
35-39	57,000	60,000	62,000	48,000	70,000	70,000	43,000	70,200	67,000	55,000	60,000
40-44	63,000	67,000	68,000	59,600	78,000	72,800	47,000	79,000	72,000	65,000	60,000
45-49	70,000	75,000	75,000	68,000	80,000	80,000	51,000	86,000	70,000	70,000	70,000
50-54	74,000	80,000	80,000	75,000	90,000	81,500	57,000	90,000	80,000	70,000	75,100
55-59	75,000	85,000	84,000	84,000	93,000	85,000	60,000	90,000	75,500	80,000	72,000
60-64	75,000	84,000	87,000	80,000	80,000	92,000	64,000	85,000	75,000	80,000	72,000
65-75	71,000	83,000	83,000	82,000	85,000	S	63,600	78,000	76,400	60,000	60,000
Citizenship status:											
U.S. total	67,000	70,000	71,000	60,000	80,000	75,000	52,000	83,000	73,000	65,000	66,000
U.S. native	65,000	70,000	70,000	60,000	80,000	76,500	52,000	81,600	72,000	65,000	66,100
U.S. naturalized	72,000	73,000	75,000	65,000	77,500	75,000	60,000	90,000	76,000	70,000	65,000
Non-U.S. total	55,000	55,000	58,300	38,000	67,000	65,000	46,000	76,000	65,000	55,000	60,000
Non-U.S., permanent resident	57,200	57,000	60,000	41,000	68,000	65,000	48,500	80,000	67,000	60,000	60,000
Non-U.S., temporary resident	46,000	45,000	48,000	31,200	65,000	65,000	41,000	51,000	60,000	40,000	70,000

See explanatory information and SOURCE at end of table.

Table 51. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and primary work activity 1997

Characteristics	Total	Research and development					Teaching	Management, sales, and administration	Computer applications	Professional services	Other activities
		Total	Applied research	Basic research	Development	Design					
Employer location:											
New England	$65,000	$66,000	$72,000	$46,000	$82,000	$75,000	$56,000	$81,600	$74,000	$60,000	$64,000
Middle Atlantic	70,000	72,000	73,000	62,000	80,000	75,000	53,000	90,000	75,000	70,000	69,000
East North Central	63,000	67,500	70,000	60,000	72,000	72,000	51,000	80,000	60,000	60,000	67,000
West North Central	57,000	60,000	61,000	52,000	70,200	60,000	48,000	75,000	57,300	60,000	60,000
South Atlantic	67,000	70,000	70,000	60,000	72,100	75,000	51,600	85,000	66,600	65,000	72,000
East South Central	58,600	61,000	62,000	55,000	67,000	65,000	48,900	78,000	57,400	63,000	62,000
West South Central	61,000	65,000	70,000	55,100	70,000	75,000	50,000	78,000	69,300	65,000	64,700
Mountain	65,000	66,000	68,000	55,000	75,000	75,000	51,000	80,000	74,300	60,000	58,000
Pacific	70,000	70,000	71,400	56,400	85,000	80,000	57,000	85,000	76,000	70,000	65,000
U.S. territories and other areas	50,000	50,000	45,000	50,000	S	S	45,000	70,000	S	S	S
Place of birth:											
U.S.	65,000	70,000	70,000	60,000	80,000	76,500	52,000	81,800	72,000	65,000	67,000
Europe	65,000	65,000	67,500	55,000	71,000	68,500	55,000	86,000	80,000	67,000	61,000
Asia	65,000	65,000	65,000	43,000	71,000	71,000	53,000	84,500	70,000	63,000	62,000
North America	65,000	67,000	72,000	52,000	S	S	50,000	101,000	S	63,000	S
Central America	56,000	56,000	50,000	57,000	S	S	55,000	S	S	S	S
Caribbean	67,000	62,000	69,000	S	S	S	50,000	80,000	S	79,300	S
South America	59,000	60,000	68,000	52,400	S	S	45,000	75,000	S	60,000	S
Africa	62,000	73,000	78,000	55,000	75,000	S	48,000	84,000	63,000	66,000	61,000
Oceania	75,000	75,000	S	S	S	S	S	S	S	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 52. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and broad field of doctorate: 1997

Characteristics	Total	Sciences	Computer and information sciences	Mathematical sciences	Biological and agricultural sciences	Health sciences	Physical and related sciences	Social and related sciences	Psychology	Engineering
Total	$65,000	$62,000	$72,000	$63,000	$60,000	$60,000	$70,000	$58,000	$60,000	$75,000
Sex:										
Men	70,000	66,000	75,000	65,000	63,000	71,000	72,000	60,100	64,000	76,000
Women	53,000	52,000	61,000	52,000	50,000	55,000	59,000	51,300	52,000	63,000
Race/ethnicity:										
White	65,500	63,500	72,000	65,000	60,800	60,000	72,000	59,400	60,000	78,000
Black	59,000	57,000	S	63,000	54,000	58,000	67,000	55,000	55,000	68,600
Asian or Pacific Islander	65,000	57,600	72,000	55,000	47,000	70,000	65,000	54,000	50,000	72,000
Hispanic	59,500	56,000	S	54,000	54,000	62,000	60,000	54,000	50,000	70,000
American Indian/Alaskan Native	56,000	54,000	S	S	60,000	S	78,000	48,000	52,000	S
Age:										
Under 35	47,000	40,500	69,000	42,000	32,000	48,000	48,000	41,200	40,000	63,000
35-39	57,000	53,000	76,000	50,000	50,000	53,000	60,000	48,000	50,000	69,000
40-44	63,000	60,000	71,000	52,000	60,000	58,000	72,000	52,000	60,000	75,000
45-49	70,000	67,800	76,800	68,000	65,900	67,000	78,000	60,000	65,000	84,000
50-54	74,000	70,000	75,000	73,000	71,000	64,000	82,000	65,000	65,000	88,000
55-59	75,000	73,000	S	74,000	72,000	66,000	80,000	66,000	68,600	94,000
60-64	75,000	70,300	S	65,000	70,000	65,000	80,000	70,100	60,000	87,000
65-75	71,000	70,000	S	81,000	72,000	72,000	71,000	70,000	63,000	78,200
Year of doctorate:										
1995-96 graduates	42,000	38,000	63,000	40,000	30,000	48,000	42,000	40,000	39,000	60,000
1993-94 graduates	48,000	43,000	68,000	40,000	35,000	50,000	50,000	41,000	45,000	63,000
1990-92 graduates	55,000	50,000	76,800	45,000	48,500	55,000	56,000	48,000	50,000	69,000
1985-89 graduates	62,000	59,100	78,000	53,500	58,000	62,000	65,000	52,000	59,000	75,000
1980-84 graduates	70,000	68,000	90,000	60,000	65,000	75,000	75,600	60,000	65,000	81,000
1970-79 graduates	76,000	75,000	84,000	75,000	73,000	76,000	81,000	70,000	69,000	90,000
1960-69 graduates	80,000	79,300	S	72,800	80,000	95,000	80,000	77,000	70,000	93,000
Pre-1960 graduates	79,600	76,000	S	130,000	78,000	S	76,000	75,000	70,000	85,000
Citizenship status:										
U.S. total	67,000	64,000	75,000	65,000	61,000	61,000	72,000	59,000	60,000	80,000
U.S. native	65,000	63,000	72,000	66,000	60,000	60,000	72,000	58,000	60,000	79,500
U.S. naturalized	72,000	69,000	80,000	63,000	66,000	77,000	73,000	64,000	55,000	80,000
Non-U.S. total	55,000	49,000	70,000	45,000	35,000	58,000	55,000	50,000	50,000	65,000
Non-U.S., permanent resident	57,200	51,000	70,000	45,000	38,000	58,000	56,200	53,000	52,000	65,000
Non-U.S., temporary resident	46,000	37,000	66,000	43,000	30,000	52,000	35,800	45,000	S	59,700

See explanatory information and SOURCE at end of table.

Table 52. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and broad field of doctorate 1997

Characteristics	Total	Sciences	Computer and information sciences	Mathematical sciences	Biological and agricultural sciences	Health sciences	Physical and related sciences	Social and related sciences	Psychology	Engineering
Place of birth:										
U.S.	$65,000	$63,000	$72,000	$66,000	$60,100	$60,000	$72,000	$58,000	$60,000	$80,000
Europe	65,000	62,000	70,000	61,000	60,000	68,000	68,000	60,900	57,000	70,000
Asia	65,000	58,000	72,000	52,500	47,900	70,000	64,000	55,000	52,000	72,000
North America	65,000	64,000	S	S	57,600	S	73,000	60,000	55,000	100;000
Central America	56,000	55,000	S	S	53,000	S	60,000	S	50,000	60,000
Carribean	67,000	64,000	S	S	57,000	S	67,000	75,000	50,000	72,000
South America	59,000	54,000	S	S	53,000	S	65,000	50,000	50,000	70,000
Africa	62,000	55,000	S	55,000	48,000	56,000	63,400	50,000	55,000	70,000
Oceania	75,000	77,000	S	S	S	S	S	70,000	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 53. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and broad occupation: 1997

Characteristics	Total	Scientists	Computer and information scientists	Mathematical scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Psychologists	Engineers	Non-S&E occupations
Total	$65,000	$60,000	$72,000	$59,000	$57,000	$65,000	$55,000	$56,000	$72,600	$78,000
Sex:										
Men	70,000	63,000	72,000	60,000	60,000	67,100	56,000	61,000	73,400	85,000
Women	53,000	50,000	65,000	50,000	47,500	55,000	50,000	50,000	63,000	58,900
Race/ethnicity:										
White	65,500	60,000	72,000	60,000	59,000	67,000	55,000	57,300	75,000	80,000
Black	59,000	54,000	63,000	69,000	51,600	61,300	50,000	50,000	67,000	66,000
Asian or Pacific Islander	65,000	57,000	70,000	50,000	45,000	60,000	52,000	47,600	70,000	78,000
Hispanic	59,500	55,000	76,800	52,500	50,000	60,000	55,000	48,000	68,000	75,000
American Indian/ Alaskan Native	56,000	51,100	S	S	54,000	S	48,000	52,000	S	60,000
Age:										
Under 35	47,000	41,000	68,000	42,000	32,000	46,000	43,000	40,000	62,000	49,500
35-39	57,000	52,000	70,000	50,000	48,000	59,000	46,000	48,000	67,000	66,000
40-44	63,000	60,000	75,000	51,000	58,000	67,000	50,000	58,000	70,000	75,000
45-49	70,000	65,000	74,300	65,000	65,000	71,000	55,000	60,000	80,000	80,000
50-54	74,000	67,700	78,000	63,400	67,800	75,000	60,000	61,000	82,500	86,000
55-59	75,000	70,000	75,000	65,000	70,000	75,600	65,000	66,000	85,000	90,000
60-64	75,000	70,000	70,000	63,000	69,000	78,000	65,000	60,000	84,500	88,000
65-75	71,000	70,000	S	80,000	75,000	70,100	67,000	63,000	78,200	70,000
Year of doctorate:										
1995-96 graduates	42,000	37,000	60,000	40,000	28,800	39,000	40,000	38,000	60,000	48,000
1993-94 graduates	48,000	43,000	65,000	43,000	35,000	50,000	40,000	44,700	60,000	48,000
1990-92 graduates	55,000	50,000	70,000	48,000	48,000	52,000	45,000	48,000	65,600	60,000
1985-89 graduates	62,000	58,000	74,500	50,200	58,000	60,000	52,000	58,000	72,500	69,000
1980-84 graduates	70,000	65,000	78,000	60,000	64,700	72,000	57,200	62,000	78,000	80,000
1970-79 graduates	76,000	70,000	80,000	64,200	70,000	77,000	63,100	65,000	85,000	90,000
1960-69 graduates	80,000	75,000	75,000	69,000	76,000	78,000	74,000	66,000	87,700	100,000
Pre-1960 graduates	79,600	78,000	S	S	77,000	80,000	S	71,200	90,000	72,000
Citizenship status:										
U.S. total	67,000	60,000	75,000	60,000	60,000	68,000	55,000	56,200	75,000	79,000
U.S. native	65,000	60,000	72,000	60,000	59,000	67,000	55,000	56,700	75,000	78,000
U.S. naturalized	72,000	67,000	77,500	60,000	62,000	71,000	60,000	53,000	75,000	84,500
Non-U.S. total	55,000	50,000	65,000	45,000	33,200	50,000	50,000	48,000	63,000	66,500
Non-U.S., permanent resident	57,200	50,000	65,000	47,000	35,000	55,000	52,000	49,600	65,000	70,000
Non-U.S., temporary resident	46,000	39,000	65,000	43,000	28,000	35,800	44,000	S	55,000	50,000

See explanatory information and SOURCE at end of table.

Table 53. Median annual salaries of doctoral scientists and engineers, by demographic characteristics and broad occupation 1997

Characteristics	Total	Scientists	Computer and information scientists	Mathematical scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Psychologists	Engineers	Non-S&E occupations
Place of birth:										
U.S.	$65,000	$60,000	$72,000	$60,000	$59,000	$67,500	$55,000	$56,800	$75,000	$78,000
Europe	65,000	60,000	75,000	58,800	54,000	63,000	59,000	55,000	69,000	83,500
Asia	65,000	57,000	70,000	49,000	45,000	60,000	54,000	50,000	70,000	78,400
North America	65,000	60,000	93,000	S	55,000	64,000	57,000	50,000	72,800	90,000
Central America	56,000	55,000	S	S	44,500	57,000	S	S	60,000	75,000
Caribbean	67,000	62,000	S	S	52,000	62,500	S	50,000	67,000	80,000
South America	59,000	54,000	S	S	53,000	56,000	59,000	49,600	70,000	70,000
Africa	62,000	56,000	70,000	65,000	45,000	61,000	45,800	S	73,000	65,000
Oceania	75,000	70,000	S	S	S	S	S	S	S	107,000

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 54. Median annual salaries of doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex: 1997

Characteristics	Total			White			Black		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$65,000	$70,000	$53,000	$65,500	$70,000	$53,000	$59,000	$62,000	$52,000
Year of doctorate:									
1995-96 graduates	42,000	46,000	38,000	40,800	45,000	38,000	40,900	40,000	41,900
1993-94 graduates	48,000	50,000	42,000	45,800	49,900	41,000	49,000	50,000	44,000
1990-92 graduates	55,000	57,500	50,000	54,000	57,000	49,000	53,000	54,000	52,000
1985-89 graduates	62,000	65,000	55,000	60,000	64,900	55,000	56,000	60,000	45,000
1980-84 graduates	70,000	72,000	61,500	70,000	72,000	60,000	69,000	69,000	69,000
1970-79 graduates	76,000	79,000	65,000	76,000	79,000	65,000	71,000	73,000	69,000
1960-69 graduates	80,000	80,700	63,000	80,000	81,000	62,000	72,000	72,000	S
Pre-1960 graduates	79,600	80,000	70,000	79,000	80,000	65,000	S	S	S
Sector of employment:									
Universities and 4-year colleges	55,000	60,000	46,100	57,000	60,000	48,000	50,000	54,700	45,000
Other educational institutions	48,000	48,600	46,000	47,700	48,000	46,000	57,000	57,500	56,000
Private-for-profit	80,000	80,000	70,000	80,000	83,500	70,000	75,000	75,400	72,000
Self-employed	75,000	80,000	65,000	75,000	80,000	65,000	90,000	S	S
Private not-for-profit	65,000	70,000	53,000	65,000	70,000	54,100	60,000	62,000	60,000
Federal government	71,000	72,600	64,000	71,000	73,000	64,000	70,000	71,000	70,000
State and local government	54,000	54,000	52,400	54,000	55,000	52,000	55,000	61,000	52,400
Other sector	90,000	90,000	95,000	90,000	90,000	63,000	S	S	S
Primary work activity:									
R&D	68,000	70,000	55,000	70,000	72,000	56,000	62,500	65,000	54,000
Applied research	70,000	72,000	60,000	70,000	74,000	60,000	65,000	69,000	56,600
Basic research	57,000	60,000	43,000	60,000	64,000	45,400	50,000	53,000	43,000
Development	75,000	77,500	68,000	80,000	80,000	67,700	70,000	73,500	S
Design	75,000	75,000	65,000	75,000	76,500	66,000	S	S	S
Teaching	52,000	55,000	45,000	52,000	55,000	45,000	50,000	50,000	44,000
Management, sales, and administration	82,000	86,000	65,000	84,000	87,400	65,000	72,000	80,000	62,000
Computer applications	70,000	71,000	60,000	72,000	72,000	60,000	63,000	63,000	S
Professional services	65,000	72,000	55,000	65,000	72,000	55,000	62,000	66,000	56,000
Other activities	65,000	70,000	58,000	67,000	70,000	58,000	65,000	67,000	57,000

See explanatory information and SOURCE at end of table.

Table 54. Median annual salaries of doctoral scientists and engineers, by employment-related characteristics, race/ethnicity, and sex 1997

Characteristics	Asian or Pacific Islander			Hispanic			American Indian/Alaskan Native		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	$65,000	$67,000	$51,000	$59,500	$65,000	$47,000	$56,000	$58,000	$50,000
Year of doctorate:									
1995-96 graduates	48,000	50,000	34,000	38,000	39,100	38,000	S	S	S
1993-94 graduates	54,000	57,500	41,000	45,300	46,000	43,500	S	S	S
1990-92 graduates	57,500	60,000	55,000	52,000	55,000	48,000	S	S	S
1985-89 graduates	70,000	70,000	60,000	60,000	65,000	50,000	48,000	S	S
1980-84 graduates	75,000	76,400	68,000	66,700	69,000	60,000	60,000	52,000	S
1970-79 graduates	79,600	80,000	65,000	70,000	70,000	50,300	67,000	72,000	S
1960-69 graduates	80,000	82,000	70,000	83,900	90,000	S	S	S	S
Pre-1960 graduates	S	S	S	S	S	S	S	S	S
Sector of employment:									
Universities and 4-year colleges	50,000	52,000	40,000	50,000	55,000	43,000	49,000	49,000	S
Other educational institutions	47,600	48,000	37,000	48,000	S	48,000	S	S	S
Private-for-profit	72,800	75,000	65,000	75,000	76,000	60,000	85,000	85,000	S
Self-employed	65,000	65,000	S	60,000	S	S	S	S	S
Private not-for-profit	60,000	68,000	38,000	66,000	75,000	50,000	S	S	S
Federal government	70,000	70,000	63,000	66,700	71,000	S	S	S	S
State and local government	50,000	50,000	53,800	50,400	S	S	S	S	S
Other sector	72,100	S	S	S	S	S	S	S	S
Primary work activity:									
R&D	65,000	66,000	51,000	60,000	65,700	46,000	60,000	60,000	S
Applied research	65,000	67,000	58,000	65,000	67,000	53,000	53,000	S	S
Basic research	42,000	47,000	35,000	52,000	56,000	39,000	S	S	S
Development	71,000	72,000	70,000	75,000	80,000	S	S	S	S
Design	70,000	71,000	S	S	S	S	S	S	S
Teaching	51,000	55,000	42,000	49,000	54,000	42,000	48,000	48,000	S
Management, sales, and administration	82,000	85,000	70,000	75,000	80,000	60,000	72,000	63,000	S
Computer applications	70,000	70,000	65,000	70,000	72,000	S	S	S	S
Professional services	60,000	62,000	54,000	60,000	75,000	50,000	58,000	S	S
Other activities	62,000	63,000	56,000	60,000	61,000	S	S	S	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.
'Other' race included with 'white'.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 55. Median annual salaries of doctoral scientists and engineers, by employment-related characteristics and citizenship status: 1997

Characteristics	Total	U.S. Citizen			Non-U.S. Citizen		
		Total	Native	Naturalized	Total	Permanent resident	Temporary resident
Total	$65,000	$67,000	$65,000	$72,000	$55,000	$57,200	$46,000
Year of doctorate:							
1995-96 graduates	42,000	41,000	40,400	45,000	45,000	46,500	45,000
1993-94 graduates	48,000	46,000	45,000	53,000	53,000	54,700	45,000
1990-92 graduates	55,000	54,000	53,000	60,000	57,000	57,200	50,000
1985-89 graduates	62,000	62,000	60,000	70,000	60,000	60,600	45,000
1980-84 graduates	70,000	70,000	70,000	75,000	72,000	72,000	S
1970-79 graduates	76,000	76,000	75,000	80,000	77,000	75,000	S
1960-69 graduates	80,000	80,000	80,000	80,000	80,000	80,000	S
Pre-1960 graduates	79,600	80,000	79,000	80,000	S	S	S
Sector of employment:							
Universities and 4-year colleges	55,000	57,000	56,000	63,000	43,000	45,000	34,000
Other educational institutions	48,000	48,000	48,000	43,000	45,000	48,000	S
Private-for-profit	80,000	80,000	80,000	80,000	67,000	68,000	63,000
Self-employed	75,000	75,000	75,000	70,000	70,000	70,000	S
Private not-for-profit	65,000	66,000	65,000	75,000	49,000	49,000	43,000
Federal government	71,000	72,000	71,000	73,200	48,000	50,000	46,000
State and local government	54,000	54,000	54,000	53,000	47,000	48,000	S
Other sector	90,000	80,000	80,000	75,000	100,000	90,000	S
Primary work activity:							
R&D	68,000	70,000	70,000	73,000	55,000	57,000	45,000
Applied research	70,000	71,000	70,000	75,000	58,300	60,000	48,000
Basic research	57,000	60,000	60,000	65,000	38,000	41,000	31,200
Development	75,000	80,000	80,000	77,500	67,000	68,000	65,000
Design	75,000	75,000	76,500	75,000	65,000	65,000	65,000
Teaching	52,000	52,000	52,000	60,000	46,000	48,500	41,000
Management, sales, and administration	82,000	83,000	81,600	90,000	76,000	80,000	51,000
Computer applications	70,000	73,000	72,000	76,000	65,000	67,000	60,000
Professional services	65,000	65,000	65,000	70,000	55,000	60,000	40,000
Other activities	65,000	66,000	66,100	65,000	60,000	60,000	70,000

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 56. Median annual salaries of doctoral scientists and engineers, by employment-related characteristics and sector of employment: 1997

Characteristics	Total	Universities and 4-year colleges	Other educational institutions	Private-for-profit	Self-employed	Private not-for-profit	Federal government	State and local government	Other sector
Total	$65,000	$55,000	$48,000	$80,000	$75,000	$65,000	$71,000	$54,000	$90,000
Year of doctorate:									
1995-96 graduates	42,000	34,000	40,000	61,000	48,000	41,000	50,000	39,000	S
1993-94 graduates	48,000	39,200	40,000	65,000	70,000	46,700	50,300	43,000	S
1990-92 graduates	55,000	45,000	45,000	70,000	60,000	57,000	59,000	52,000	S
1985-89 graduates	62,000	52,500	46,000	79,000	78,000	63,000	65,000	53,700	80,000
1980-84 graduates	70,000	59,000	49,000	85,000	85,000	70,000	72,000	55,800	100,000
1970-79 graduates	76,000	68,000	52,000	92,000	75,000	80,000	82,100	60,000	125,200
1960-69 graduates	80,000	75,000	52,000	96,000	91,000	79,900	90,000	65,000	S
Pre-1960 graduates	79,600	83,000	S	83,000	30,000	50,000	96,000	S	S
Primary work activity:									
R&D	68,000	56,000	54,000	76,000	70,000	70,000	70,000	50,000	80,000
Applied research	70,000	59,700	54,000	76,000	60,000	70,000	70,000	50,000	80,000
Basic research	57,000	55,000	S	75,000	80,000	55,000	65,000	48,000	S
Development	75,000	63,000	S	78,000	80,000	80,000	68,000	55,000	S
Design	75,000	55,000	S	75,000	90,000	75,000	71,000	52,000	S
Teaching	52,000	52,000	42,000	62,000	S	60,000	S	S	S
Management, sales, and administration	82,000	75,000	69,000	92,000	70,000	70,000	85,000	58,000	100,000
Computer applications	70,000	50,000	S	75,000	52,000	65,000	72,600	51,300	S
Professional services	65,000	54,000	55,000	80,000	80,000	53,000	63,000	53,700	S
Other activities	65,000	60,000	60,000	72,000	30,000	65,000	72,900	53,800	100,000

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 57. Median annual salaries of doctoral scientists and engineers, by field of doctorate and year of doctorate: 1997

Field of doctorate	Total	1995-96 graduates	1993-94 graduates	1990-92 graduates	1985-89 graduates	1980-84 graduates	1970-79 graduates	1960-69 graduates	Pre-1960 graduates
Total	$65,000	$42,000	$48,000	$55,000	$62,000	$70,000	$76,000	$80,000	$79,600
Sciences	62,000	38,000	43,000	50,000	59,100	68,000	75,000	79,300	76,000
Computer and mathematical sciences	65,000	50,000	57,000	57,000	63,000	65,000	75,000	72,800	130,000
Computer/information sciences	72,000	63,000	68,000	76,800	78,000	90,000	84,000	S	S
Mathematical sciences	63,000	40,000	40,000	45,000	53,500	60,000	75,000	72,800	130,000
Biological and agricultural sciences	60,000	30,000	35,000	48,500	58,000	65,000	73,000	80,000	78,000
Agricultural/ food sciences	60,000	38,800	40,000	52,000	58,000	64,000	68,800	81,800	75,000
Biological sciences	60,000	29,000	34,000	48,000	59,000	66,000	75,000	80,000	80,000
Environmental life sciences	60,000	39,700	S	50,000	52,500	67,000	70,000	72,000	S
Health sciences	60,000	48,000	50,000	55,000	62,000	75,000	76,000	95,000	S
Physical and related sciences	70,000	42,000	50,000	56,000	65,000	75,600	81,000	80,000	76,000
Chemistry except biochemistry	70,500	40,000	56,000	60,000	69,000	77,000	81,000	79,000	75,000
Earth/atmos/ocean sciences	60,000	40,000	42,000	48,000	55,000	70,000	76,000	82,000	S
Physics and astronomy	73,000	44,000	48,000	55,000	65,000	77,000	84,000	84,000	79,600
Social sciences	58,000	40,000	41,000	48,000	52,000	60,000	70,000	77,000	75,000
Economics	69,000	52,000	54,000	52,500	60,000	70,000	76,000	82,000	S
Political and related sciences	58,000	38,500	40,000	44,000	50,000	58,000	72,000	77,300	S
Sociology	53,300	36,900	36,000	41,900	47,000	56,000	63,000	74,000	S
Other social sciences	52,000	38,500	38,000	44,000	50,000	56,500	65,000	68,000	S
Psychology	60,000	39,000	45,000	50,000	59,000	65,000	69,000	70,000	70,000
Engineering	75,000	60,000	63,000	69,000	75,000	81,000	90,000	93,000	85,000
Aerospace/aeronautical engineering	75,000	58,000	56,000	60,000	71,000	100,000	91,500	80,000	S
Chemical engineering	79,000	60,000	65,000	72,000	77,000	84,000	93,900	95,000	S
Civil/architectural engineering	69,000	48,000	52,000	60,000	70,000	72,000	86,000	78,200	S
Electrical/computer engineering	80,000	68,000	70,000	75,000	83,000	85,000	90,000	100,000	84,000
Materials/metallurgical engineering	75,000	57,000	62,000	67,500	75,000	85,000	93,000	99,000	S
Mechanical engineering	73,000	59,000	60,000	69,000	70,000	80,000	84,000	92,000	S
Other engineering	75,000	56,000	60,000	63,000	71,500	80,000	90,000	82,000	S

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 58. Median annual salaries of doctoral scientists and engineers, by geographic location and broad field of doctorate: 1997

Geographic location	Total	Sciences	Computer and information sciences	Mathematical sciences	Biological and agricultural sciences	Health sciences	Physical and related sciences	Social and related sciences	Psychology	Engineering
Total	$65,000	$62,000	$72,000	$63,000	$60,000	$60,000	$70,000	$58,000	$60,000	$75,000
New England	65,000	62,000	90,000	70,000	56,000	63,000	70,000	60,000	60,000	73,000
Connecticut	74,000	74,000	S	76,500	71,200	70,000	78,000	74,000	65,100	75,000
Maine	55,000	55,000	S	S	50,000	S	60,000	55,000	60,000	53,000
Massachusetts	66,000	63,000	90,000	76,800	52,000	70,000	70,000	62,000	58,000	76,000
New Hampshire	58,000	54,000	S	S	S	S	70,000	50,000	46,700	70,000
Rhode Island	58,000	51,000	S	S	60,000	S	56,000	50,000	50,000	66,500
Vermont	55,000	50,000	S	S	48,000	S	65,000	46,000	55,000	S
Middle Atlantic	70,000	67,000	80,000	70,000	65,000	64,000	75,000	60,000	65,000	80,000
New Jersey	78,000	75,000	85,000	87,000	75,000	71,000	78,000	61,000	66,000	85,000
New York	67,500	65,000	74,500	65,000	60,000	62,000	74,000	61,000	65,000	78,000
Pennsylvania	65,000	63,000	S	59,500	62,500	60,000	70,000	58,100	63,000	75,000
East North Central	63,000	60,000	65,000	60,000	60,000	61,000	68,000	56,500	56,700	71,000
Illinois	65,000	65,000	72,000	64,000	64,000	55,000	69,000	65,000	59,000	72,000
Indiana	60,000	56,000	S	46,700	60,000	55,000	70,000	49,900	60,000	69,000
Michigan	68,000	62,500	S	58,600	62,000	83,000	70,300	59,800	60,000	75,000
Ohio	62,000	60,000	S	60,000	60,000	60,500	66,500	51,300	57,000	70,000
Wisconsin	56,700	54,900	S	54,000	54,000	50,000	60,000	57,300	50,000	70,000
West North Central	57,000	55,000	65,000	50,000	58,000	55,000	62,000	50,000	52,000	67,700
Iowa	55,000	55,000	S	53,000	59,000	S	52,000	51,000	50,000	55,000
Kansas	52,000	50,000	S	36,000	50,000	S	62,000	41,000	60,000	64,000
Minnesota	61,000	58,000	S	65,000	58,000	70,000	68,800	50,000	51,000	70,000
Missouri	57,300	55,000	S	50,800	61,000	50,000	60,000	53,200	50,000	80,000
Nebraska	57,000	57,800	S	S	60,300	S	60,000	56,000	48,000	57,000
North Dakota	48,000	48,000	S	S	55,000	S	S	S	70,000	S
South Dakota	45,000	45,000	S	S	60,100	S	S	S	S	S
South Atlantic	67,000	65,000	65,000	65,000	62,000	63,600	71,000	63,400	60,000	78,000
Delaware	80,000	79,000	S	S	70,000	S	81,000	82,000	S	95,000
District of Columbia	81,000	80,000	S	80,000	69,000	80,000	84,000	84,000	75,000	84,000
Florida	60,000	55,000	S	48,000	53,000	60,000	60,000	55,000	60,500	75,000
Georgia	60,000	58,000	S	62,000	65,700	55,000	58,000	47,500	64,000	80,000
Maryland	68,900	65,000	76,000	70,000	60,000	65,000	75,000	63,700	56,700	81,800
North Carolina	64,000	62,000	67,000	59,000	65,000	60,000	62,000	57,000	57,200	73,000
South Carolina	56,000	55,000	S	59,000	58,000	57,000	60,000	50,000	52,500	70,200
Virginia	70,000	66,000	S	72,000	60,000	57,500	72,500	58,000	64,000	82,000
West Virginia	61,000	57,000	S	S	57,000	S	75,000	41,000	S	72,000

See explanatory information and SOURCE at end of table.

Table 58. Median annual salaries of doctoral scientists and engineers, by geographic location and broad field of doctorate: 1997

Geographic location	Total	Sciences	Computer and information sciences	Mathematical sciences	Biological and agricultural sciences	Health sciences	Physical and related sciences	Social and related sciences	Psychology	Engineering
East South Central	$58,600	$56,000	S	$49,900	$55,000	$60,000	$61,000	$55,000	$60,000	$70,000
Alabama	60,000	56,000	S	48,000	56,000	60,000	60,000	55,000	56,200	74,000
Kentucky	55,000	55,000	S	50,000	60,000	S	61,000	50,000	50,000	68,000
Mississippi	57,000	53,000	S	S	55,000	62,000	50,000	50,000	60,000	75,300
Tennessee	60,000	60,000	S	65,000	47,000	60,000	64,600	56,000	65,000	62,300
West South Central	61,000	59,000	70,000	55,000	56,000	56,000	70,000	52,000	55,000	72,500
Arkansas	53,400	52,000	S	S	50,600	S	54,000	55,000	50,000	65,400
Louisiana	58,000	55,000	S	S	53,000	S	63,000	50,000	59,000	69,000
Oklahoma	55,000	54,000	S	S	58,000	S	51,500	50,000	60,500	60,000
Texas	65,000	60,000	75,000	55,000	58,000	60,000	70,000	55,000	55,000	75,000
Mountain	65,000	60,000	68,000	60,000	57,000	55,000	70,000	52,000	54,000	75,000
Arizona	65,000	59,000	S	52,700	55,000	S	70,000	52,000	65,000	75,000
Colorado	60,000	60,000	S	60,000	58,000	55,000	70,000	60,000	52,000	70,000
Idaho	62,000	60,000	S	S	62,000	S	60,000	50,000	S	70,000
Montana	50,000	48,000	S	S	58,000	S	60,000	S	43,000	S
Nevada	67,000	65,200	S	S	65,000	S	77,900	60,000	75,000	74,000
New Mexico	72,000	70,000	S	62,000	55,300	S	75,800	50,000	50,000	80,000
Utah	60,000	55,000	S	73,000	55,000	S	52,000	60,000	50,000	77,000
Wyoming	54,000	50,000	S	S	S	S	60,000	S	S	S
Pacific	70,000	65,000	80,000	75,000	60,000	61,000	72,600	62,000	61,500	80,000
Alaska	62,000	59,000	S	S	53,000	S	89,000	S	S	S
California	72,000	70,000	85,000	80,000	65,000	65,000	75,000	64,000	63,000	83,000
Hawaii	60,000	60,000	S	S	57,600	S	61,000	62,000	61,500	100,000
Oregon	56,100	53,000	78,000	49,400	52,000	58,000	63,000	52,000	46,000	67,000
Washington	62,000	60,000	S	55,600	57,900	53,000	65,000	60,000	60,000	70,000
U.S. territories and other areas	50,000	50,000	S	S	45,000	S	60,000	50,000	50,000	58,000

NOTE: Numbers are rounded to nearest ten.
Details may not add to total because of rounding.
Since the SDR sample design does not include geography, the reliability of estimates in some states may be poor due to a small sample size.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Table 59. Median annual salaries of doctoral scientists and engineers, by geographic location and broad occupation: 1997

Geographic location	Total	Scientists	Computer and information scientists	Mathematical scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Psychologists	Engineers	Non-S&E occupations
Total	$65,000	$60,000	$72,000	$59,000	$57,000	$65,000	$55,000	$56,000	$72,600	$78,000
New England	65,000	60,000	77,000	62,000	52,000	65,000	60,000	58,000	70,000	76,500
Connecticut	74,000	70,000	S	74,000	67,000	75,000	70,000	66,000	72,000	80,000
Maine	55,000	52,000	S	S	48,000	51,000	55,000	60,000	S	60,000
Massachusetts	66,000	62,000	78,000	63,000	51,000	65,000	60,000	55,000	72,000	83,200
New Hampshire	58,000	50,000	85,000	S	S	46,000	S	45,000	70,000	65,000
Rhode Island	58,000	53,000	S	S	52,000	58,000	50,000	50,000	65,000	55,000
Vermont	55,000	49,000	S	S	41,000	S	40,000	55,000	71,600	63,000
Middle Atlantic	70,000	65,000	79,000	60,000	62,000	70,000	55,000	61,000	75,000	86,000
New Jersey	78,000	73,700	80,000	75,000	70,000	75,000	64,000	62,000	80,000	98,000
New York	67,500	61,000	74,500	59,000	58,000	71,000	54,000	60,000	73,000	83,200
Pennsylvania	65,000	60,600	70,000	58,000	61,000	62,000	55,000	61,000	70,000	80,000
East North Central	63,000	57,000	66,000	57,000	57,000	62,500	54,000	52,000	70,000	74,600
Illinois	65,000	61,000	72,000	63,000	59,500	63,000	59,000	55,000	71,000	73,000
Indiana	60,000	52,200	S	45,000	54,000	62,000	49,900	55,000	61,500	89,000
Michigan	68,000	60,000	65,000	58,600	65,000	60,000	59,800	56,000	75,000	80,000
Ohio	62,000	56,000	60,000	59,000	57,000	63,000	49,500	52,000	70,000	71,000
Wisconsin	56,700	52,000	S	43,900	48,000	57,900	55,000	50,000	63,000	68,500
West North Central	57,000	53,000	58,000	46,000	55,000	55,000	48,000	50,000	66,000	70,000
Iowa	55,000	53,000	50,000	48,000	55,000	55,000	48,000	54,000	55,000	75,000
Kansas	52,000	50,800	S	S	50,000	55,000	41,000	60,000	64,000	50,000
Minnesota	61,000	54,000	70,000	65,000	53,000	60,000	50,000	51,000	69,000	76,000
Missouri	57,300	53,200	65,100	45,000	57,000	50,000	53,200	43,000	75,000	75,000
Nebraska	57,000	56,000	S	S	60,000	64,000	55,000	47,200	57,000	60,000
North Dakota	48,000	48,000	S	S	51,000	S	S	70,000	S	S
South Dakota	45,000	45,000	S	S	60,100	S	S	S	S	49,000
South Atlantic	67,000	61,000	66,600	62,000	60,000	68,000	57,200	55,000	75,000	82,000
Delaware	80,000	75,000	S	S	70,000	81,000	S	S	84,900	92,000
District of Columbia	81,000	75,000	65,000	77,500	69,000	80,000	80,000	62,000	84,000	93,700
Florida	60,000	52,800	60,000	45,000	50,000	55,100	50,900	54,500	74,000	70,000
Georgia	60,000	56,000	65,000	62,000	60,000	53,000	45,800	50,000	78,000	75,000
Maryland	68,900	62,000	70,000	65,000	57,000	75,000	57,200	55,000	80,000	85,000
North Carolina	64,000	60,000	65,500	59,000	64,000	58,100	52,500	54,000	70,000	75,000
South Carolina	56,000	54,000	S	57,000	51,000	59,000	50,000	52,500	70,000	70,000
Virginia	70,000	62,000	72,000	75,000	59,000	68,000	54,000	57,000	78,000	87,000
West Virginia	61,000	54,200	S	S	54,000	64,000	41,000	S	72,000	84,000

See explanatory information and SOURCE at end of table.

Table 59. Median annual salaries of doctoral scientists and engineers, by geographic location and broad occupation: 1997

Geographic location	Total	Scientists	Computer and information scientists	Mathematical scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Psychologists	Engineers	Non-S&E occupations
East South Central	$58,600	$54,500	$57,000	$48,000	$53,000	$60,000	$54,500	$56,000	$65,000	$75,000
Alabama	60,000	54,000	56,000	44,000	54,000	52,900	55,000	53,000	74,000	83,000
Kentucky	55,000	53,000	65,000	48,000	54,000	61,000	48,000	50,000	S	58,000
Mississippi	57,000	53,000	S	S	53,000	51,000	45,000	S	80,000	68,100
Tennessee	60,000	56,500	S	50,000	47,000	62,000	56,000	63,000	60,000	78,000
West South Central	61,000	56,000	68,000	51,000	54,000	62,000	50,000	54,400	70,000	72,000
Arkansas	53,400	50,000	S	S	49,000	50,000	54,500	50,000	S	75,000
Louisiana	58,000	55,000	60,000	37,000	54,000	60,000	50,000	59,000	67,700	60,000
Oklahoma	55,000	53,500	S	S	53,500	54,000	48,000	63,000	60,000	67,000
Texas	65,000	60,000	69,400	54,000	56,000	70,000	52,000	50,000	73,000	74,000
Mountain	65,000	58,200	70,000	57,000	54,000	70,000	50,000	50,000	72,000	75,000
Arizona	65,000	58,000	S	51,000	47,300	70,000	47,000	67,000	75,400	60,900
Colorado	60,000	58,000	67,000	58,900	54,000	60,000	57,000	50,000	65,000	84,000
Idaho	62,000	55,000	S	S	55,000	60,000	S	S	70,000	75,000
Montana	50,000	45,000	S	S	55,000	S	S	42,500	S	64,800
Nevada	67,000	65,200	S	S	63,000	75,000	S	67,000	74,000	65,000
New Mexico	72,000	70,000	69,500	60,000	53,900	75,000	41,500	45,000	72,000	80,000
Utah	60,000	53,000	S	S	54,000	45,000	50,000	48,000	75,000	74,000
Wyoming	54,000	50,000	S	S	S	63,400	S	S	S	S
Pacific	70,000	63,500	80,000	63,000	58,000	67,000	59,000	60,000	77,000	80,000
Alaska	62,000	60,000	S	S	53,000	S	S	S	S	55,800
California	72,000	65,000	82,500	70,000	60,000	70,000	61,000	60,000	80,000	88,000
Hawaii	60,000	57,700	S	S	58,000	62,000	55,400	55,000	95,000	60,000
Oregon	56,100	52,000	70,000	54,300	52,000	53,000	49,300	45,000	60,000	62,000
Washington	62,000	58,000	70,000	50,000	52,000	56,000	61,000	60,000	70,000	70,000
U.S. territories and other areas	50,000	45,000	S	S	42,600	56,000	S	S	S	65,000

NOTE: Numbers are rounded to nearest hundred.
Median salaries were computed for full-time employed individuals only.
Since the SDR sample design did not include geography, the reliability of estimates in some states may be poor due to a small sample size.

KEY: S=Suppressed due to too few cases (fewer than 200 weighted cases).

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

APPENDIX A. TECHNICAL NOTES

APPENDIX A. TECHNICAL NOTES[1]

The data on doctoral scientists and engineers contained in this report come from the 1997 Survey of Doctorate Recipients (SDR). The SDR is a longitudinal panel survey of individuals who have received their doctorates mainly in the sciences or engineering fields. Since the 1970s, this study has been conducted every two years for the National Science Foundation (NSF) and other Federal sponsors.[2]

The National Opinion Research Center conducted the SDR for the first time in 1997. Data collected in the SDR are part of the Scientists and Engineers Statistical Data System (SESTAT) surveys that are sponsored and maintained by the NSF. Additional data on education and demographic information come from the Doctorate Records File (DRF), which contains data from an ongoing census of all research doctorates earned in the United States since 1920.

THE SAMPLING FRAME AND TARGET POPULATION

The sampling frame for the 1997 SDR was compiled from the DRF to include individuals who:

1. had earned a doctoral degree from a U.S. college or university in a science or engineering field;[3]
2. were U.S. citizens, or, if non-U.S. citizens, indicated they had plans to remain in the United States after degree award; and
3. were under 76 years of age.

The 1997 SDR frame consisted of the 1995 SDR sample supplemented with graduates who had earned their degrees since the 1995 survey and who met the conditions listed above. Those who were carried over from 1995 but had attained the age of 76 (or died) were deleted from the frame.

The survey had two additional eligibility criteria for the survey target population. The sampled member must be a resident in the United States and not institutionalized as of the survey reference date.

SAMPLE DESIGN

In 1997, the SDR sample size was 54,103. The total sample was selected from 2 groups:

1. 1995 sample members who were still eligible in 1997, and
2. a sample of the 1995-96 graduating cohort.

Group 2 cases were oversampled in 1997 to obtain more precise estimates on the recent doctorates data. A maintenance cut was done to the sample to keep the sample size of the Group 1 cases roughly the same as it was in 1995.

The basic sampling design was a stratified design where strata were defined by 15 broad fields of study, 2 genders, and an 8-category "group" variable combining race/ethnicity, handicap status, and citizenship status. As in the prior years, the goals were to maintain a fairly constant sample size and to equalize probabilities of selection to the extent possible. The primary changes for 1997 were an oversample of the 1995-96 cohort, and a slight redefinition of strata by field of study. The stratification variables were the same, but the classifications for field of study were revised in 1997. Humanities graduates were interviewed in 1995, but not in 1997.

The overall sampling rate was about 1 in 12 (8.5 percent) in the 1997 SDR, applied to an estimated population of 632,800. However, sampling rates varied considerably within and between the strata. These differences resulted from oversampling to provide a useful sample size for the recent doctorate cohorts, women, minority groups and other groups of special interest, and the accumulation of sample size adjustments over the years.

SURVEY CONTENT

The 1997 SDR retained questionnaire design changes that were implemented in 1993. In addition to a large set of core data items that are conveyed from year to year, the 1997 questionnaire included new questions covering several areas of interest. The 1995 modules on the work history and postdocs were dropped

[1] The discussions presented here are partly from The Methodological Report of the 1997 Survey of Doctorate Recipients (NORC, March 1999).

[2] In 1997, the National Institutes of Health co-sponsored the SDR with NSF. In previous rounds, the Department of Energy and the National Endowment for the Humanities co-sponsored the survey. Until 1995, the SDR was conducted by the National Research Council (NRC).

[3] See appendix B for a list of the specialties included in the 1997 SDR sampling frame.

and a new module on the recent doctorates was added in 1997. Also a new question was asked of the respondents to classify employer's main business in addition to a series of questions on temporary or alternative work arrangements, job security concerns, job satisfaction, and household income.

Data Collection

The 1997 SDR data collection consisted of two phases: a self-administered mail survey, followed by computer assisted telephone interviewing (CATI) of a sample of the nonrespondents to the mail survey. The mail survey consisted of an advance letter and the several waves of a personalized mailing package, with a reminder postcard between the 1st and 2nd questionnaire mailing. The advance letter was sent in May 1997, followed by the 1st mailing in early June. The second mailing was sent in August 1997. To increase the mail response rate, an additional follow-up mailing occurred via Federal Express. The CATI follow-up ended in March 1998.

Response Rates

The overall unweighted response rate for the 1997 SDR was 85 percent. The response to the mail phase of the survey was about 55 percent. The overall weighted response rate was about 78 percent (weighted response divided by the weighted sample cases.)

Data Preparation

Data preparation for the 1997 SDR included pre-data entry edit, data entry, coding, telephone call backs for critical items and sample verification, post-data entry editing and data review, and imputation. As completed survey mail questionnaires were received, they were logged and transferred to the pre-data entry editing at NORC for processing.

The data from the questionnaire were keyed into the database in a process known as CADE (Computer-Assisted Data Entry). The data entry program, SurveyCraft, contained a full complement of range, consistency, skip error checks to prevent entry errors and inconsistent answers. Three on-line coding programs were tied into the SDR CADE program to ease data entry of special codes: IPEDS for educational institutions, Federal Information Processing Standards (FIPS) for U.S. states and foreign countries, and Primary Field of Study/Education. Consistency checks were also built into the CATI program along with the skip patterns. Some consistency checks were performed on a number of variables prior to the merge of the CADE and CATI data files to ensure complete compatibility. Computer checks also flagged the cases with missing key items (employment status, occupation, birthdate, etc.) and the telephone call-backs were made to obtain the response; otherwise they were considered as incomplete responses.

A detailed edit specification was developed from the SESTAT surveys edit guideline to perform further computer editing of multiple values to "Mark One" questions, skip errors, range errors, inter-item inconsistencies, cross year inconsistencies. "Other Specify" responses were coded using the SESTAT coding guidelines and respondents' occupational data was reviewed along with other work-related data from the questionnaire to "correct" known respondent self-reporting problems to obtain the "best" occupation codes.

Basic frequency distributions of all survey items showed item nonresponse rates to be generally less than 3 percent. Nonresponse to a few questions deemed somewhat sensitive, such as annual salary or household income, was around 6.5 percent. To compensate for the item nonresponse, data not reported by the respondents, as well as response of "refused" or "don't know" were imputed. Two imputation methods were used: (1) logical imputation, and (2) hot deck imputation. For logical imputation, either the respondent's answers to related questions determined what the missing value had to be, or the respondent's answer to the same question in the prior survey round substituted for the missing value. The latter approach of using the historical data is often called "cold deck" imputation. Cold deck imputation is useful for variables that are static, such as place of birth or gender. When logical imputation was used, it was employed before hot deck imputation.

In hot deck imputation, a donor case is selected from the current round of respondents by matching on related variables. The donor case's response is used as a proxy for the recipient's missing variable. Hot deck imputation is the method of choice for variables that may change over time, such as employment characteristics. Hot deck is preferable to model-based imputation in this application because it easily preserves correlation among variables and maintains the valid response rages for categorical variables.

Imputation was done in a specified sequence, with key auxiliary variables being imputed first. After the key variables were imputed, variables were imputed by

questionnaire section. Within a section, variables were imputed more or less in questionnaire order, with certain exceptions. Questions used to drive skip patterns were imputed before questions affected by the skip driver. Questions new to this round were imputed last within a section. Where logical, groups of companion variables were imputed together (such as the various reasons for working outside the Ph.D. field).

Weighting and Estimation

To enable weighted analyses of the 1997 SDR data, a sample weight was calculated for every person in the sample. The primary purpose of the weights is to create representative estimates by adjusting for unequal probabilities of selection. The second purpose is to adjust for the effects of nonresponse. Informally, a sampling weight approximates the number of persons in the Ph.D. population that a sampled person represents.

The weights were calculated in several stages. The first stage was the calculation of base weights that account for the sample design. A base weight for a respondent is the reciprocal of the probability of selection. The revised base weights ranged from 1.0 to 112.008 with a median value of 11.442. The sum of the revised weights, 632,789, is also an estimate of the frame size. Base weights varied within cells because different sampling rates were used depending on the year of selection and the stratification in effect at that time.

The next stage was to construct a combined weight, which took into account the subsampling of nonrespondents at the CATI phase. All respondents received a combined weight, which for mail respondents was equal to the sample weight and for CATI respondents was a combination of their original sample weight and their CATI subsample weight. The final stage was to adjust the sampling weights for unit nonresponse. (Unit nonresponse occurs when the sample member refuses to participate or cannot be located.) This was done in a group of nonresponse adjustment cells created using poststratification.

Within each nonresponse adjustment cell, a weighted nonresponse rate, which took into account both mail and CATI nonresponse, was calculated. The nonresponse adjustment factor was the inverse of this weighted response rate. The initial set of nonresponse adjustment factors was examined and, under certain conditions, some of the cells were collapsed if use of the adjustment factor would create excessive variance. The final weights for respondents were calculated by multiplying their respective combined weights by the nonresponse adjustment factor. In data analysis, population estimates are made by summing the final weights of all respondents who possess a particular characteristic.

Reliability

Because the estimates produced from this survey are based on a sample, they may vary from those that would have been obtained if all members of the target population had been surveyed (using the same questionnaire and data collection methods). Two types of error are possible when population estimates are derived from measures of a sample: nonsampling error and sampling error. By looking at these errors, it is possible to estimate the accuracy and precision of the survey results.

Sampling error is the variation that occurs by chance because a sample, rather than the entire population, is surveyed. The particular sample that was used to estimate the 1997 population of science and engineering doctorates in the United States was one of a large number of samples that could have been selected using the same sample design and size. Estimates based on each of these samples would have differed.

Sampling errors were developed using a generalized variance procedure in order to provide approximate sampling errors that would be applicable to a wide variety of items. As a result, these sampling errors provide an indication of the order of magnitude of a sampling error rather than a precise sampling error for any specific item. This method first computes the variances associated with selected variables for certain subsets of the sample. The variances of the selected variables were computed using SUDAAN software and the Taylor series approximation method, which can incorporate finite correction factors. The finite correction factors are important for the SDR sample design where some strata had high sampling fractions.

The estimated variances for the selected variables were used to estimate regression coefficients for use in generalized variance functions that estimate the standard errors associated with a broader range of totals and percentages. For each of the demographic groups and fields of study shown in Appendix D, 31 models from the variables listed above were combined into a nonlinear regression to fit a predictive model for standard errors, as described below.

Appendix table D shows model parameters, a and b, that can be used to approximate standard errors for the S&E doctoral population overall, for broad field groupings used by NSF, and for selected subgroups of analytic interest.[4] Let x denote the estimated total for which a standard error is desired. The standard error can be approximated using the appropriate values of a and b along with the following formula for standard errors of totals:

$$Sx = [ax^2 + bx]^{1/2}$$

Percentages are another type of estimate for which standard errors may be desired. The standard error of a percentage may be approximated using the formula:

$$Sp = p[b((1/x)-(1/y))]^{1/2}$$

where p equals the percentage possessing the specific characteristic and x and y represents the numerator and denominator, respectfully, of the ratio that yields the observed percentage.

In addition to sampling error, data are subject to nonsampling error, which can arise at many points in the survey process. Sources of nonsampling error takes many different forms: (1) nonresponse bias, which arises when the characteristics between individuals who do not respond to a survey differ significantly from those who do; (2) measurement error, which arises when we are not able to precisely measure the variables of interest; (3) coverage error, which arises when some members of the target population are not identified and thus do not have a chance to be selected for the sample; (4) processing error, which can arise at the point of data editing, coding or key entry. These sources of error are much harder to estimate than sampling errors.

IMPORTANT NOTES ON THE TABLES

Please note several changes that were made in the 1997 tables from 1993 and 1995 reports:

1. **Doctorate field groups** were changed as follows:
   - Health sciences is now shown separately from the biological sciences (characteristics between these two field are deemed to be too different to be shown combined);
   - Other physical sciences, including earth sciences, were combined with geology and oceanography to form a new combined group, earth/atmospheric/ocean sciences (individual field counts are too small thus the meaningful groups are combined together);
   - Anthropology is separated from sociology and is combined with other social sciences;
   - Psychology is now shown separately from the social sciences (characteristics between psychology and other social sciences are deemed to be too different to be shown combined);
   - Industrial engineering is combined with other engineering (number was getting too small); materials/metallurgical engineering is now shown separately; and
   - Computer/information sciences and mathematical sciences are now shown separately in all broad doctorate field tables (characteristics between these two fields are deemed to be too different to be shown combined).
2. **Occupation field groups** were changed as follows:
   - Psychologists and postsecondary teachers in psychology are shown separately from social sciences.
   - Computer/information scientists and mathematical scientists are now shown separately in all broad occupation tables.
3. Following **table number changes** occurred:

1993 and 1995 tables no.	1997 table no.
17	21
18	22
19	23
20	17
21	18

4. Because of the many redesign changes introduced to the 1993 SDR still retained in 1997, users are advised that the data in this report, as well as the in the 1993 or 1995 reports, are not strictly comparable with the SDR data published by NSF prior to 1993.

[4]The generalized error estimates in this report were based on a set of assumptions that did not appear to hold in the case of some small subpopulations. In such cases, the parameters listed for a higher-level field within a demographic group or a higher-level demographic group within a field were considered a useful substitute as a generalized error estimate.

The following notes will help facilitate the use of data in the detailed tables.

Field of doctorate is the field of degree as specified by the respondent in the Survey of Earned Doctorates at the time of degree conferral. (See appendix B for doctorate degree field.)

Occupation data were derived from responses to several questions on the type of work primarily performed by the respondent. The occupational classification of the respondent was based on his/her principal job held during the reference week— or last job held, if not employed on the reference week (questions A26 or A5). Also used in the occupational classification was a respondent-selected job code (questions A27 or A6).

Sector of employment was based on responses to questions A15 and A17. The category "universities and 4-year colleges" includes 4-year colleges or universities, medical schools (including university-affiliated hospitals or medical centers), university affiliated research institutions, and other type of institutions. "Private-for-Profit" includes self-employed in incorporated business.

Employer Location was based primarily on responses to question A11 on the location of the principal employer. Individuals not reporting place of employment were classified by their last mailing address.

Place of Birth categories were defined as follows:

U.S. = Fifty states plus the Virgin Islands, Panama Canal Zone, Puerto Rico, American Samoa, Trust Territory, and Guam

Europe = Albania, Armenia, Austria, Belarus, Bosnia-Herzegovina, Bulgaria, Czech Republic, Croatia, Estonia, Georgia, Greece, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia,Ukraine, Federal Republic of Yugoslavia, Andorra, Belgium, France, Gibraltar, Luxembourg, Monaco, The Netherlands, Portugal, Spain, Switzerland, Germany, Italy, Liechtenstein, Malta, Denmark, England, Finland, Iceland, Northern Ireland, Republic off Ireland, Norway, Scotland, Sweden, Wales, Europe, not specified

Asia = Afghanistan,Bahrain,Bangladesh, Cyprus, India, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Nepal, Palestine, Saudi Arabia, Sri Lanka, Syria, Turkey, Cambodia, People's Republic of China, Philippines, Taiwan, China Unspecified, Hong Kong, Japan, Republic of Korea, Korea Unspecified, Laos, Malaysia, Singapore, Thailand, Democratic Republic of Vietnam, Republic of Vietnam, Asia, not specified

North America = Bermuda, Canada, Greenland, North America, not specified

Central America = Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Central America, not specified

Caribbean = Barbados, Cuba, Dominican Republic, Haiti, Jamaica, Caribbean not specified

South America = Argentina, Bolivia, Brazil, Chile, Columbia, Ecuador, French Guinea,Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela, South America, not specified

Africa = Algeria, Egypt, Ethiopia, Ghana, Kenya, Libya, Morocco, Nigeria, South Africa, Sudan, Africa, not specified

Oceania = Australia, Indonesia, New Zealand, Oceania, not specified

Primary work activity was determined from responses to question A38. "Development" includes the development of equipment, products, and systems. "Design" includes the design of equipment, processes, and models.

Federal support was determined from responses to questions A46 and A47.

Faculty Rank/Tenure status was obtained from the response to questions A18 and A19.

Race/ethnicity categories of white, black, Asian/Pacific Islander and American Indian/Alaskan Native refer to non-Hispanic individuals only.

Citizenship status category of Non-U.S., temporary resident does not include individuals who, at the time they received their doctorate, expressed plans to leave the U.S. These individuals were excluded from the sampling frame.

Salary data were derived from responses to question A43, in which information was requested regarding annual salary before deductions for the principal job held during April 1997, excluding income from bonuses, overtime, and summer teaching/research. Salaries reported are median annual salaries, rounded to the nearest $100 and computed for full-time employed scientists and engineers. For individuals employed by educational institutions, no accommodation was made to convert academic-year salaries to calendar-year salaries. Users are advised that due to a wording change in the salary question since 1993, the 1997 salary data are not strictly comparable with 1993 salary data.

Labor force participation rate. The labor force is defined as those employed (E) plus those unemployed (U—i.e., those not-employed persons actively seeking work). Population (P) is defined as all S&E doctorate holders under age 76, residing in U.S. during the week of April 15, 1997, who earned their doctorate from U.S. institutions. The labor force participation rate (R_{LF}) is the ratio of the labor force to the population (P).

$$R_{LF} = (E+U) / P$$

Unemployment rate. The unemployment rate (R_U) is the ratio of those who are unemployed but seeking employment (U) to the total labor force (E+U).

$$R_{LF} = U / (E+U)$$

Involuntarily out-of-field rate. The S&E involuntarily out-of-field rate is the percent of employed individuals who reported they were either:

- working part-time exclusively because suitable full-time work was not available; and/or
- working in an area not related to the first doctoral degree (in their principal job) at least partially because suitable work in the field was not available.

APPENDIX B. DEGREE FIELD LIST

APPENDIX B. DEGREE FIELD LIST

DRF Code	Field Name	NSF Code
	COMPUTER AND MATHEMATICAL SCIENCES	
	COMPUTER AND INFORMATION SCIENCES	
400	Computer Sciences	D67
410	Information Sciences and Systems	D67
	MATHEMATICAL SCIENCES	
420	Applied Mathematics	841
498	Mathematics, General	842
465	Operations Research	843
450	Statistics	844
425	Algebra	845
430	Analysis and Functional Analysis	845
435	Geometry	845
440	Logic	845
445	Number Theory	845
455	Topology	845
460	Computing Theory and Practice	845
499	Mathematics, Other	845
	BIOLOGICAL AND AGRICULTURAL SCIENCES	
	AGRICULTURAL AND FOOD SCIENCES	
005	Animal Breading and Genetics	605
007	Animal Husbandry	605
010	Animal Nutrition	605
012	Dairy Science	605
014	Poultry Science	605
019	Animal Sciences, Other	605
040	Food Sciences	606
042	Food Distribution	606
043	Food Engineering	606
044	Food Sciences, Other	606
020	Agronomy	607
025	Plant Breeding and Genetics	607
030	Plant Pathology	607
032	Plant Protect./Pest Mgmt	607
039	Plant Sciences, Other	607
050	Horticulture Science	607
045	Soil Sciences	608
046	Soil Chemistry/Microbiology	608
049	Soil Sciences, Other	608
099	Agricultural Sciences, Other	608
098	Agriculture, General	608

DRF Code	Field Name	NSF Code
	BIOLOGICAL SCIENCES	
100	Biochemistry	631
103	Biomedical Sciences	642
105	Biophysics	631
198	Biological Sciences, General	632
120	Plant Pathology	633
125	Plant Physiology	633
129	Botany, Other	633
136	Cell Biology	634
154	Molecular Biology	634
139	Ecology	635
115	Plant Genetics	636
170	Genetics, Human and Animal	636
171	Genetics	636
156	Microbiology/Bacteriology	637
157	Microbiology	637
110	Bacteriology	637
163	Nutritional Sciences	638
180	Pharmacology, Human and Animal	639
185	Physiology, Human and Animal	640
186	Physiology, Animal and Plant	640
148	Entomology	641
175	Pathology, Human and Animal	641
189	Zoology	641
107	Biotechnology Research	642
133	Biometrics and Biostatistics	642
130	Anatomy	642
140	Hydrobiology	642
142	Developmental Biology	642
145	Endocrinology	642
151	Immunology	642
160	Neurosciences	642
166	Parasitology	642
169	Toxicology	642
199	Biological Sciences, Other	642
	ENVIRONMENTAL LIFE SCIENCES, INCLUDING FORESTRY SCIENCES	
580	Environmental Sciences	680
055	Fisheries Sciences	680
054	Fish and Wildlife	680
060	Wildlife	681
065	Forestry Science	681
066	Forest Biology	681
068	Forest Engineering	681
070	Forest Management	681
072	Wood Science	681
074	Renewable Natural Resources	681
079	Forestry and Related Sciences, Other	681
080	Wildlife/Range Management	681

DRF Code	Field Name	NSF Code
	HEALTH AND RELATED SCIENCES	
200	Audiology and Speech Pathology	781
212	Health Systems/Services Administration	782
225	Medicine and Surgery	786
205	Dentistry	786
235	Optometry/Opthamology	786
250	Veterinary Medicine	786
230	Nursing	787
240	Pharmacy	788
245	Rehabilitation/Therapeutic Services	789
220	Epidemiology	790
215	Public Health	790
210	Environmental Health	790
219	Public Health/Epidemiology	790
222	Exercise Physiology/Kinesiology	791
224	Hospital Administration	791
299	Health Sciences, Other	791
298	Health Sciences, General	791
	PHYSICAL AND RELATED SCIENCES	
	CHEMISTRY, EXCEPT BIOCHEMISTRY	
526	Organic	873
528	Pharmaceutical	873
530	Physical	873
532	Polymer	873
534	Theoretical	873
538	Chemistry, General	873
539	Chemistry, Other	873
524	Nuclear	873
520	Analytical	873
522	Inorganic	873
521	Agriculture and Food	873
	EARTH, ATMOSPHERIC, OCEAN SCIENCES	
514	Meteorology	872
518	Atmos. and Metero. Sciences, General	872
519	Atmos. and Metero. Sciences, Other	872
512	Atmospheric Dynamics	872
510	Atmospheric Physics and Chemistry	872
540	Geology	875
548	Mineralogy, Petrology	875
549	Mineralogy/Petrol/Geochemistry	875
550	Stratigraphy/Sedimentation	875
552	Geomorphol and Glacial Geology	875

DRF Code	Field Name	NSF Code
	EARTH, ATMOSPHERIC, OCEAN SCIENCES (CONTINUED)	
554	Applied Geology	875
555	Applied Geology/Geology Engr	875
547	Fuel Tech. and Petrol. Engineering	876
558	Geological Sciences, General	876
559	Geological Sciences, Other	876
546	Paleontology	876
545	Geophysics	876
544	Geophysics and Seismology	876
542	Geochemistry	876
590	Oceanography	877
585	Hydrology and Water Resources	D87
595	Marine Sciences	D87
599	Miscellaneous Physical Sciences, Other	D87
	PHYSICS AND ASTRONOMY	
500	Astronomy	871
505	Astrophysics	871
506	Astronomy and Astrophysics	871
566	Fluids	878
567	Mechanics	878
568	Nuclear	878
569	Optics	878
570	Plasma	878
572	Polymer	878
573	Thermal	878
574	Solid State	878
575	Theoretical	878
578	Physics, General	878
579	Physics, Other	878
563	Electromagnetism	878
564	Elementary Particles	878
560	Acoustics	878
561	Atomic and Nuclear	878
562	Electronic Physics	878
	SOCIAL SCIENCES	
	ECONOMICS	
666	Economics	923
668	Econometrics	923
000	Agricultural Economics	601

DRF Code	Field Name	NSF Code
	POLITICAL SCIENCE AND RELATED SCIENCES	
682	Public Policy Studies	902
674	International Relations	927
679	Political Sciences/Public Adm.	928
678	Political Sciences and Government	928
	SOCIOLOGY	
686	Sociology	929
	OTHER SOCIAL SCIENCES	
650	Anthropology	921
652	Area Studies	620
658	Criminology	922
670	Geography	924
710	History of Science	925
729	Linguistics	771
773	Archeology	921
694	Urban Studies	930
698	Social Sciences, General	930
699	Social Sciences, Other	930
662	Demography	930
690	Social Statistics	930
	PSYCHOLOGY	
618	Educational Psychology	704
600	Clinical	891
609	Counseling	892
615	Experimental	893
620	Family and Marriage Counseling	897
613	Human/Individualand Family Development	897
648	Psychology, General	894
621	Industrial and Organization.	895
639	Social	896
619	Human Engineering	897
624	Personality	897
627	Physiological	897
630	Psychometrics	897
633	Quantitative	897
636	School	897
616	Exper/Compar/Physiol	897
612	Developmentaland Child	897
649	Psychology, Other	897
606	Comparative	897
603	Cognitive	897

DRF Code	Field Name	NSF Code
	ENGINEERING	
	AEROSPACE AND RELATED ENGINEERING	
300	Aerospace/Aeronaut/Astronaut	721
	CHEMICAL ENGINEERING	
312	Chemical	725
	CIVIL ENGINEERING	
315	Civil	726
	ELECTRICAL, ELECTRONIC, COMPUTER AND COMMUNICATIONS ENGINEERING	
372	Systems	727
321	Computer	727
324	Electrical/Electronics	728
323	Electronics	728
322	Electrical	728
318	Communications	728
	MATERIALS AND METALLURGICAL ENGINEERING	
309	Ceramic	734
342	Materials Science	734
369	Polymer	734
375	Textile	734
348	Metallurgical	736
	MECHANICAL ENGINEERING	
345	Mechanical	735

DRF Code	Field Name	NSF Code
	OTHER ENGINEERING	
303	Agricultural	722
306	Bioengineering and Biomedical	724
327	Engineering Mechanics	729
330	Engineering Physics	729
333	Engineering Science	729
336	Environmental Health Engr	730
339	Industrial	733
398	Engineering, general	731
351	Mining and Mineral	737
354	Naval Arch and Marine Eng	738
357	Nuclear	739
366	Petroleum	740
360	Ocean	D74
363	Operations Research (Engr.)	D74
399	Engineering, Other	D74

APPENDIX C. OCCUPATION FIELD LIST

APPENDIX C. OCCUPATION FIELD LIST

1.0 COMPUTER AND MATHEMATICAL SCIENCES

1.1 COMPUTER AND INFORMATION SCIENCES

520 Computer systems analysts
530 Computer scientists, except systems analysts
540 Information systems scientists and analysts
550 Other computer and information science occupations
880 Computer engineers-software

1.2 MATHEMATICAL SCIENCES

172 Mathematicians
173 Operations research analysts, modeling
174 Statisticians
176 Other mathematical scientists

1.8 POSTSECONDARY TEACHERS IN COMPUTER AND MATHEMATICAL SCIENCES

276 Postsecondary Teachers-Computer
286 Postsecondary Teachers-Mathematical Science

2.0 LIFE AND RELATED SCIENCES

2.1 AGRICULTURAL AND FOOD SCIENCES

210 Agricultural and food scientists

2.2 BIOLOGICAL SCIENCES

022 Biochemists and biophysicists
023 Biological scientists
025 Medical scientists, except practitioners
027 Other biological and life scientists

2.3 ENVIRONMENTAL LIFE SCIENCES, INCLUDING FORESTRY SCIENCES

024 Forestry and conservation scientists

2.8 POSTSECONDARY TEACHERS IN LIFE AND RELATED SCIENCES

271 Postsecondary teachers-Agriculture
273 Postsecondary teachers-Biological scientists
287 Postsecondary teachers-Medical science
297 Other postsecondary teachers-Natural sciences

3.0 PHYSICAL AND RELATED SCIENCES

3.1 CHEMISTRY, EXCEPT BIOCHEMISTRY

193 Chemists, except biochemists

3.2 Earth science, geology and oceanography

192 Atmospheric and space scientists
194 Geologists, including earth sciences
195 Oceanographers

3.3 Physics and astronomy

191 Astronomer
196 Physicists

3.4 Other physical sciences

198 Other physical and related sciences

3.8 Postsecondary teachers in Physical and related sciences

275 Postsecondary teachers-Chemistry
277 Postsecondary teachers-Earth, environmental and marine science
289 Postsecondary teachers-Physics

4.0 Social and Related Sciences

4.1 Economics

232 Economists

4.2 Political science and related sciences

235 Political Scientists

4.3 Psychology

236 Psychologists, including clinical psychologists

4.4 Sociology and anthropology

231 Anthropologists
237 Sociologists

4.5 Other social sciences

233 Historians, science and technology
238 Other Social Scientists

4.7 Postsecondary teachers in Social and related sciences

278 Postsecondary teachers-Economics
290 Postsecondary teachers-Politics
291 Postsecondary teachers-Psychology
293 Postsecondary teachers-Sociology
298 Postsecondary teachers-Other social sciences

5.0 Engineering

5.1 Aerospace and related engineering

082 Aeronautical, aerospace and astronautical engineers

5.2 Chemical engineering

085 Chemical engineers

5.7 Civil and architectural engineering

086 Civil engineers, including architectural and sanitary

5.4 Electrical, electronic, computer and communications engineering

087 Computer engineers - Hardware
089 Electrical and electronics engineers

5.5 Industrial engineering

091 Industrial engineers

5.6 Mechanical engineering

094 Mechanical engineers

5.7 Other engineering

083 Agricultural engineers
084 Bioengineering and biomedical engineers
090 Environmental engineers
092 Marine engineers and naval architects
093 Materials and metallurgical engineers
095 Mining and geological engineers
096 Nuclear engineers
097 Petroleum engineers
098 Sales engineers
099 Other engineers

5.8 Postsecondary teachers in engineering

280 Postsecondary teachers-engineering

6.0 Non-S&E Occupations

6.1 Management and administration

141 Top and mid-level managers, executives, administrators
151 Accountants, auditors, and other financial specialists
152 Personnel, training and labor relations specialists
153 Other management related occupations

6.2 Health and related

111 Diagnosing and treating health practitioners
112 Registered nurses, pharmacists, dieticians, therapists, etc.
113 Health technologists and technicians
114 Other health occupations

6.3 Non-postsecondary Teaching and related

251 Teachers, Pre-kindergarten and kindergarten
252 Teachers, Elementary school
253 Teachers, Secondary-Computer, math or science
254 Teachers, Secondary-Social sciences
255 Teachers, Secondary-Other subjects
256 Teachers, Special education
257 Teachers, Other precollegiate education

6.4 Non-S&E postsecondary teaching

272 Postsecondary teachers-Art, drama, and music
274 Postsecondary teachers-Business commerce and marketing
279 Postsecondary teachers-Education
281 Postsecondary teachers-English
282 Postsecondary teachers-Foreign language
283 Postsecondary teachers-History
284 Postsecondary teachers-Home economics
285 Postsecondary teachers-Law
288 Postsecondary teachers-Physical education
292 Postsecondary teachers-Social work
294 Postsecondary teachers-Theology
295 Postsecondary teachers-Trade and industrial
296 Postsecondary teachers-Other health specialties
299 Postsecondary teachers-Other non-S&E not listed above

6.5 Social service and related

040 Clergy and other religious workers
070 Counselors, educational and vocational
240 Social workers

6.6 Technology and technical

026 Technologists/technicians in biology/life sciences
051 Computer programmers
100 E&E, industrial, mechanical engineering technologist/technicians
101 Drafting occupations, including computer drafting
102 Surveying and mapping engineering technicians
103 Other engineering technologists and technicians
104 Surveyors
175 Technologists/Technicians in mathematical sciences
197 Technologists/Technicians in physical sciences

6.7 SALES AND MARKETING

200 Sales/Marketing-Insurance, securities, real estate, and business services
201 Sales Occupations-Commodities, except retail
202 Sales Occupations-Retail
203 Other marketing and sales occupations

6.8 ART, HUMANITIES AND RELATED

010 Artists, broadcasters, editors, entertainers, public relations specialists, writers
234 Historians, except science and technology

6.9 OTHER NON-S&E

031 Accounting clerks and bookkeepers
032 Secretaries, receptionists and typists
033 Other administrative
081 Architects
110 Farmers, foresters, and fishermen
120 Lawyers and judges
130 Librarians, archivists and curators
171 Actuaries
221 Food preparation and service workers
222 Protective service workers
223 Other service occupations, except health
401 Construction trades, miners and well drillers
402 Mechanics and repairers
403 Precision production occupations
404 Operators and related occupations
405 Transportation and material moving occupations
500 Other Occupations
995 Other Fields (Not Listed)
999 Unknown/Not Applicable

OTHER CATEGORIES

000 Never Worked
997 Not on Survey
998 Logical Skipped

APPENDIX D. GENERALIZED VARIANCE FUNCTION (GVF) TABLES

Table D: Listing of a and b parameters for selected demographic groups in science and engineering fields, 1997

Field of doctorate	Parameter	All	Female	White	Asian	Black	American Indian/Alaskan Native	Hispanic	1995-96 Cohort	Foreign
Science and engineering, Total	a	-0.000024	-0.000094	-0.000027	-0.000095	-0.000079	0.001763	0.000196	-0.000025	-0.000196
	b	20.232903	15.149944	20.72127	18.686566	12.705895	14.15559	12.995122	9.614203	21.030685
Sciences	a	-0.00003	-0.000099	-0.000033	-0.000139	-0.000022	0.001844	0.000144	-0.000023	-0.000292
	b	19.663329	15.262763	20.145051	17.969387	11.757938	14.982789	13.199846	9.636961	21.478287
Computer and mathematical sciences	a	-0.000464	-0.002212	-0.0005	-0.001425	0.026547	0.283845	0.008215	-0.000843	-0.00235
	b	20.091003	12.827339	19.824503	21.521454	4.835119	-0.0073	13.169017	11.806712	24.495633
Computer and information sciences	a	-0.001845	-0.004028	-0.001664	-0.002922	0.129749	-0.034	0.214927	-0.001863	-0.006645
	b	20.713524	7.13076	19.100579	21.19831	2.254268	0.770419	0.968027	12.085238	26.658114
Mathematical sciences	a	-0.000624	-0.003706	-0.000677	-0.002091	0.054928	0.393259	0.003389	-0.000885	-0.003264
	b	20.058239	15.140621	19.983911	20.342138	0.858148	-0.10279	12.380153	10.535876	22.587272
Life and related sciences	a	-0.00007	-0.000214	-0.000077	-0.000345	0.000145	0.010391	0.000345	-0.000034	-0.0008
	b	15.281118	11.871579	15.616633	14.531558	9.258944	4.096479	8.480597	7.014069	17.517255
Agricultural and food sciences	a	-0.000872	-0.005658	-0.000949	-0.003377	0.012182	0.280027	0.017791	-0.001045	-0.006407
	b	19.276192	16.364908	19.567888	17.516577	6.783573	0.911722	6.230076	8.528777	17.899706
Biological and health sciences	a	-0.000079	-0.000224	-0.000086	-0.000386	0.000039	0.013465	0.000113	-0.000033	-0.000946
	b	14.83711	11.652207	15.180441	13.972145	9.026595	3.902157	8.715575	6.871224	17.416621
Environmental life sciences	a	-0.002929	-0.017896	-0.003228	0.045602	0.42929	0.196741	0.281755	0.001106	-0.015137
	b	18.232159	13.266102	18.402555	11.201389	0.398229	0.480885	1.320654	7.223846	17.937842
Physical and related sciences	a	-0.000145	-0.000997	-0.000156	-0.000581	0.007352	0.04467	-0.000627	-0.000213	-0.001084
	b	21.945816	17.410416	22.01546	21.304705	9.986558	13.687949	19.212837	11.469419	24.848397
Chemistry (except biochem)	a	-0.000296	-0.001635	-0.000331	-0.001065	0.012744	0.102262	0.00177	-0.000244	-0.00222
	b	24.295076	18.79464	24.810838	21.723233	8.647245	13.402229	16.996885	11.816135	26.398445
Geology and oceanography	a	-0.000995	-0.007282	-0.001009	-0.003614	-0.073678	0.155894	-0.003477	-0.000481	-0.009553
	b	18.283583	15.452059	18.244082	15.52674	2.375153	0.664785	17.574747	9.293523	20.294082

See explanatory information, if any, and SOURCE at end of table.

Table D: Listing of a and b parameters for selected demographic groups in science and engineering fields, 1997

Field of doctorate	Parameter	All	Female	White	Asian	Black	American Indian/Alaskan Native	Hispanic	1995-96 Cohort	Foreign
Physics and astronomy	a	-0.000429	-0.004623	-0.000461	-0.001505	0.053159	0.273376	-0.00045	-0.001074	-0.002734
	b	20.645565	14.595172	20.473608	20.914248	3.33927	0.287338	18.951945	11.95886	24.264742
Other physical sciences	a	-0.009866	-0.014956	-0.010663	0.094785	0.771164	0.745162	0.53882	-0.010718	0.298198
	b	19.374057	15.821797	17.517231	14.022327	0.448199	0.781607	0.704011	8.852852	2.444919
Social and related sciences	a	-0.000105	-0.000254	-0.000113	-0.000371	-0.000746	0.012824	0.001185	-0.000022	-0.001464
	b	23.642372	18.419134	24.427464	18.182615	13.637331	10.694843	11.741858	11.021691	22.888345
Economics	a	-0.000813	-0.002897	-0.000776	-0.001443	0.022294	0.20888	0.079184	0.000168	-0.004901
	b	27.901272	13.756899	27.852654	20.56361	12.936106	2.025526	1.97254	10.661175	26.112712
Political sciences	a	-0.001265	-0.004448	-0.001388	0.007285	0.008958	0.620476	0.028923	0.003355	-0.010464
	b	30.740477	18.628215	32.054004	15.339387	10.537346	0.710545	6.213745	11.744591	24.626077
Psychology	a	-0.000197	-0.000441	-0.000211	-0.000912	-0.003485	0.015737	-0.001443	-0.000168	-0.004031
	b	22.029115	19.76502	22.706156	11.403181	14.992655	8.687126	12.367131	10.814714	17.004236
Sociology and anthropology	a	-0.000669	-0.001374	-0.000771	0.001165	0.000719	0.150139	0.013216	-0.000601	-0.001964
	b	21.807267	16.808106	23.301466	9.610278	6.542606	1.312996	4.193325	10.258593	14.645076
Other social sciences	a	-0.001357	-0.002782	-0.001443	0.002559	0.003794	0.255084	0.114433	0.000149	-0.002857
	b	27.673657	18.946937	28.56068	19.54313	10.357035	0.096308	2.018867	11.836137	19.245046
Engineering	a	-0.000135	-0.001877	-0.000143	-0.000307	-0.000731	0.065553	0.003143	-0.000259	-0.00063
	b	23.911762	13.316046	25.099797	20.346603	16.648171	1.100106	12.775474	9.673781	20.645608
Aeronautical/astronautical engineering	a	-0.002378	-0.152869	-0.001488	-0.006436	-0.07224	0.470717	0.301029	-0.00316	-0.017505
	b	23.91485	9.210093	24.332356	20.137258	4.032171	1.096085	4.999338	9.814938	25.997467
Chemical engineering	a	-0.000877	-0.012176	-0.000851	-0.002339	0.109684	0.53478	0.054738	-0.002085	-0.006151
	b	24.052324	13.049035	24.968387	20.355464	2.47499	1.893646	6.510081	10.466707	22.25003

See explanatory information, if any, and SOURCE at end of table.

Table D: Listing of a and b parameters for selected demographic groups in science and engineering fields, 1997

Field of doctorate	Parameter	All	Female	White	Asian	Black	American Indian/Alaskan Native	Hispanic	1995-96 Cohort	Foreign
Civil engineering	a	-0.001091	-0.012471	-0.000699	-0.000756	0.086622	0.050728	0.07148	-0.000692	-0.005031
	b	22.153612	11.297929	21.64021	20.33911	8.579907	1.254839	7.228125	9.226534	21.253607
Electrical, computer engineering	a	-0.000637	-0.003844	-0.00073	-0.000795	0.035405	-0.001001	0.027452	-0.000953	-0.001902
	b	26.441873	6.569228	28.52405	18.133374	3.212409	10.744708	11.771131	9.857609	20.760058
Industrial engineering	a	-0.004714	-0.029746	-0.00458	-0.016285	0.117949	0.708563	-0.054803	-0.006022	-0.018049
	b	19.925106	18.755381	18.19022	25.128298	2.430541	0.298271	4.305273	9.934907	17.534647
Mechanical engineering	a	-0.000848	-0.018552	-0.000524	-0.002179	0.199099	0.12058	0.018237	-0.001	-0.003753
	b	21.041164	16.148224	19.980719	20.415118	4.493056	1.945219	9.21845	8.910516	18.736915
Other engineering	a	-0.00049	-0.005883	-0.000472	-0.001405	0.020606	0.07629	0.02231	-0.001268	-0.002573
	b	26.676798	15.32922	27.101252	23.669797	14.917233	1.893646	8.104554	10.685531	21.695164

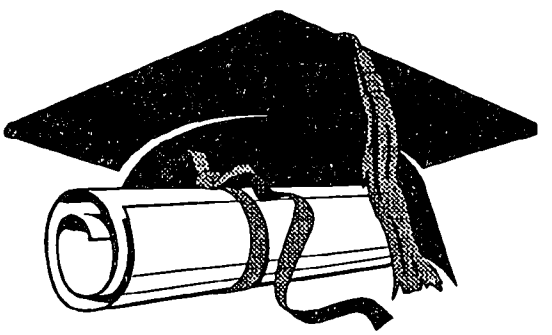
SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

APPENDIX E. SURVEY QUESTIONNAIRE

FORM SDR-1
(4-18-97)

OMB No.: 3145-0020

Approval Expires: 04/30/99



1997
Survey of Doctorate Recipients

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended. All information you provide will be treated as confidential and used only for research or statistical purposes by the survey sponsors, their contractors, and collaborating researchers for the purpose of analyzing data and preparing scientific reports and articles. Any information publicly released (such as statistical summaries) will be in a form that does not personally identify you. Your response is voluntary and failure to provide some or all of the requested information will not in any way adversely affect you. Actual time to complete the questionnaire may vary depending on your circumstances. On the average, it will take about 25 minutes to complete the questionnaire. If you have any comments on the time required for this survey, please send them to Herman Fleming, Division of Contracts, Policy and Oversight, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB number for this project is 3145-0020.

Conducted by:
National Opinion Research Center
Chicago, IL

Conducted for:
the
National Science Foundation
Arlington, VA

INSTRUCTIONS

Thank you for taking the time to complete this questionnaire. Directions for filling it out are provided with each question. Because not all questions will apply to everyone, you may be asked to skip certain questions.

- In order to get comparable data, we will be asking you to refer to the week of April 15, 1997 (e.g., April 13-April 19, 1997) when answering most questions
- Follow all "SKIP" instructions AFTER marking a box. If no "SKIP" instruction is provided, you should continue to the NEXT question
- Either a pen or pencil may be used
- When answering questions that require marking a box, please use an "X"
- If you need to change an answer, please make sure that your old answer is either completely erased or clearly crossed out

Thanks again for your help, we really appreciate it.

PART A - Employment Status During the Reference Week of April 13-19, 1997

A1. **Were you working for pay (or profit) during the week of April 15, 1997? This includes a postdoctoral appointment, being self-employed or temporarily absent from a job (e.g., illness, vacation or parental leave), even if unpaid.**

1 ☐ Yes → *SKIP to A7, page 2*

2 ☐ No

A2. *(IF NO)* **Did you look for work during the four weeks preceding April 15, 1997 (that is, anytime between March 19 and April 15, 1997)?**

1 ☐ Yes

2 ☐ No

A3. **What were your reasons for not working during the week of April 15?**

Mark (X) all that apply

Year Retired

1 ☐ Retired → 19 |

2 ☐ On layoff from a job

3 ☐ Student

4 ☐ Family responsibilities

5 ☐ Chronic illness or permanent disability

6 ☐ Suitable job not available

7 ☐ Did not need or want to work

8 ☐ Other - *Specify*

_____

_____

A4. **Prior to the week of April 15, 1997, when did you last work for pay (or profit)?**

0 ☐ - MARK (X) THIS BOX IF NEVER WORKED FOR PAY (OR PROFIT) AND SKIP TO PART D, PAGE 13

	Month	Year
LAST WORKED	|	19 |

A5. **What kind of work were you doing on this last job--that is, what was your occupation?** *Please be as specific as possible, including any area of specialization*

EXAMPLE: *College professor - Electrical engineering*

_____

_____

_____

A6. **Using the JOB CODES LIST (pages 20-21), choose the code that BEST describes the work you were doing on this last job.**

CODE | | → *SKIP to A53, page 9*

NOTE - Job codes range from 010 to 500

BEST COPY AVAILABLE

A7. *(IF WORKED DURING WEEK OF APRIL 15TH)* **Counting *all* jobs held during the week of April 15, 1997, did you USUALLY work . . .**

1 ☐ A total of 35 or more hours per week → ***SKIP to A10***

2 ☐ Fewer than 35 hours per week

A8. *(IF FEWER THAN 35 HOURS)* **During the week of April 15, did you want to work a full-time work week of 35 or more hours?**

1 ☐ Yes

2 ☐ No

A9. **What were your reasons for working a part-time work week (i.e., less than 35 hours) during the week of April 15?**

Mark (X) all that apply

		Year Retired
1 ☐	Retired or semi-retired	→ 19
2 ☐	Student	
3 ☐	Family responsibilities	
4 ☐	Chronic illness or permanent disability	→ ***SKIP to A11***
5 ☐	Suitable full-time work week job not available	
6 ☐	Did not need or want to work full-time	
7 ☐	Other - *Specify*	

_____

_____

A10. *(IF 35 OR MORE HOURS)* **Although you were working during the week of April 15, had you previously RETIRED from any position?**

Examples of retirement include mandatory retirement, early retirement, or voluntary retirement

		Year Retired
1 ☐	Yes →	19
2 ☐	No	

The next several questions ask about your principal employer during the week of April 15, 1997.

A11. **Who was your principal employer during the week of April 15, 1997?**

IF MORE THAN ONE JOB: *Record employer for whom you worked the most hours that week*

IF EMPLOYER HAD MORE THAN ONE LOCATION: *Record location where you usually worked*

Employer Name _____

City/Town _____

State/Foreign Country _____

ZIP Code _____

A12. **Thinking about your employer's main business (i.e., what your employer makes or does), under which of these categories does your employer's *main business* BEST fit?**

IF PRINCIPAL EMPLOYER HAS MORE THAN ONE TYPE OF BUSINESS: *Please answer for the type of business primarily performed at the location where you work*

Mark (X) ONLY one

1 ☐ Agriculture, forestry, or fishing

2 ☐ Biotechnology

3 ☐ Construction or mining

4 ☐ Education

5 ☐ Finance, insurance or real estate services

6 ☐ Health services

7 ☐ Information technology or computer services

8 ☐ All other services (e.g., social, legal, business)

9 ☐ Manufacturing

10 ☐ Public administration/government

11 ☐ Research - *Specify*

_____

12 ☐ Transportation services, utilities or communications

13 ☐ Wholesale or retail trade

14 ☐ Other

A13. **Counting all locations where this employer operates, how many people work for your principal employer? Your best estimate is fine.**

Mark (X) ONLY one

1 ☐ Under 10 employees
2 ☐ 10 - 24 employees
3 ☐ 25 - 99 employees
4 ☐ 100 - 499 employees
5 ☐ 500 - 999 employees
6 ☐ 1,000 - 4,999 employees
7 ☐ 5,000 + employees

A14. **Did your principal employer come into being as a new business within the past 5 years?**

1 ☐ Yes
2 ☐ No

A15. **Was your principal employer during the week of April 15 . . .**

IF EMPLOYER WAS A SCHOOL: *Mark (X) the type of organizational charter (e.g., mark "state government" for state schools; most private schools are "private not-for-profit")*

Mark (X) ONLY one

1 ☐ A PRIVATE FOR-PROFIT company, business or individual, working for wages, salary or commissions
2 ☐ A PRIVATE NOT-FOR-PROFIT, tax-exempt, or charitable organization
3 ☐ SELF-EMPLOYED in own NOT INCORPORATED business, professional practice, or farm
4 ☐ SELF-EMPLOYED in own INCORPORATED business, professional practice, or farm
5 ☐ Local GOVERNMENT (e.g., city, county)
6 ☐ State GOVERNMENT
7 ☐ U.S. military service, active duty or Commissioned Corps (e.g., USPHS, NOAA)
8 ☐ U.S. GOVERNMENT (e.g., civilian employee)
9 ☐ Other - *Specify*

_____

A16. **Was your principal employer an educational institution?**

1 ☐ Yes
2 ☐ No → ***SKIP to A20, page 4***

A17. ***(IF EDUCATIONAL INSTITUTION)*** **Was this educational institution a . . .**

Mark (X) ONLY one

1 ☐ Preschool, elementary, or middle school or system → ***SKIP to A20, page 4***
2 ☐ Secondary school or system
3 ☐ Two-year college, community college, technical institute
4 ☐ Four-year college or university, other than a medical school
5 ☐ Medical school (including university-affiliated hospital or medical center)
6 ☐ University-affiliated research institute
7 ☐ Something else - *Specify*

_____

_____

A18. **What was your faculty rank?**

Mark (X) ONLY one

1 ☐ Not applicable at this institution
2 ☐ Not applicable for my position
3 ☐ Professor
4 ☐ Associate Professor
5 ☐ Assistant Professor
6 ☐ Instructor
7 ☐ Lecturer
8 ☐ Adjunct Faculty
9 ☐ Other - *Specify*

_____

_____

A19. **What was your tenure status?**

Mark (X) ONLY one

1 ☐ Not applicable: no tenure system at this institution

2 ☐ Not applicable: no tenure system for my position

3 ☐ Tenured

4 ☐ On tenure track but not tenured

5 ☐ Not on tenure track

The next several questions ask about some alternative or temporary working relationships that people *may* have with their employers.

A20. **Did any of the following apply to your relationship with your principal employer during the week of April 15, 1997?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Self-employed working as an independent contractor, independent consultant, free lance worker or otherwise self-employed	1 ☐	2 ☐
2. Your principal employer contracted out your services to other organizations (not including temporary help or employment agencies)	1 ☐	2 ☐
3. Working through a temporary help or employment agency	1 ☐	2 ☐
4. Working on an "as needed", "seasonal" or short term basis	1 ☐	2 ☐
5. Job sharing	1 ☐	2 ☐
6. Working from home for 50 percent or more of your work time	1 ☐	2 ☐
7. Something else - *Specify* _____ _____	1 ☐	2 ☐

A21. **Did you answer "yes" to any of the categories above?**

1 ☐ Yes

2 ☐ No → ***SKIP to A24, page 5***

A22. ***(IF YES)*** **What were your reasons for having an alternative or temporary work arrangement during the week of April 15?**

For this study, being self-employed is considered an alternative working relationship

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Schedule flexibility	1 ☐	2 ☐
2. Only type of work you could find	1 ☐	2 ☐
3. Gain experience that may lead to a permanent job	1 ☐	2 ☐
4. Better pay	1 ☐	2 ☐
5. Family-related reasons (e.g., children, spouse's job moved)	1 ☐	2 ☐
6. In school or some type of training program	1 ☐	2 ☐
7. Enjoy being your own boss	1 ☐	2 ☐
8. Employer changed your status to temporary	1 ☐	2 ☐
9. Other reason - *Specify* _____ _____	1 ☐	2 ☐

A23. **Which factors in A22 represent your two main reasons for holding alternative or temporary employment or being self-employed?**
Enter the number of the appropriate reason from A22 above

1. _____ First reason

2. _____ Second reason
(Enter "0" if no second reason)

A24. **If you could have any type of working relationship you wanted, would your first choice be . . .**

Mark (X) ONLY one

1 ☐ A permanent job (either full-time or part-time), that is a job with no set end date

2 ☐ Being self-employed

3 ☐ Some other type of working relationship - *Specify*

_____

_____

A25. **Concerning your principal job during the week of April 15, were any of the following benefits available to you, even if you chose not to take them?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Health insurance that was at least partially paid by your employer?	1 ☐	2 ☐
2. A pension plan or a retirement plan to which your employer contributed? . .	1 ☐	2 ☐
3. A profit-sharing plan?	1 ☐	2 ☐
4. Paid vacation, sick or personal days? .	1 ☐	2 ☐

The next set of questions asks about your work on your principal job during the week of April 15, 1997.

A26. **What kind of work were you doing on your principal job held during the week of April 15, 1997–that is, what was your occupation?** *Please be as specific as possible, including any area of specialization*

EXAMPLE: *College professor - Electrical engineering*

_____

_____

_____

A27. **Using the JOB CODES LIST (pages 20-21), choose the code that BEST describes the work you were doing on your principal job during the week of April 15.**

CODE | |

NOTE - Job codes range from 010 to 500

A28. **Did you record job code "141" (manager, executive, or administrator) in A27?**

1 ☐ Yes

2 ☐ No → ***SKIP to A30, page 6***

A29. *(IF YES)* **Did your duties on this job require the technical expertise of a bachelor's degree or higher in . . .**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Engineering, computer science, math, or the natural sciences	1 ☐	2 ☐
2. The social sciences	1 ☐	2 ☐
3. Some other field (e.g., health or business) - *Specify*		
_____		
_____	1 ☐	2 ☐

BEST COPY AVAILABLE

A30. **Was this job a "postdoc?"**

A "postdoc" is a temporary position awarded in academe, industry, or government primarily for gaining additional education and training in research

1 ☐ Yes
2 ☐ No → ***SKIP to A33***

A31. **What were your reasons for taking this postdoc?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Additional training in PhD field	1 ☐	2 ☐
2. Training in an area outside of PhD field	1 ☐	2 ☐
3. Work with a specific person or place	1 ☐	2 ☐
4. Other employment not available	1 ☐	2 ☐
5. Postdoc generally expected for career in this field	1 ☐	2 ☐
6. Some other reason - *Specify* _____	1 ☐	2 ☐

A32. **What were your two MOST important reasons for taking this postdoc?** *Enter number of appropriate reason from A31*

1. _____ MOST important reason

2. _____ SECOND MOST important reason *(Enter "0" if no second reason)*

A33. **During what month and year did you start this job, (that is, your principal job held during the week of April 15, 1997)?**

	Month		Year
JOB STARTED	|	19	|

A34. **As of the week of April 15, were you licensed or certified in your occupation?** *Do NOT include academic degrees (e.g., BA, MA, PhD)*

1 ☐ Yes
2 ☐ No

A35. **Thinking about the relationship between your work and your education, to what extent was your work on your principal job held during the week of April 15 related to your (first U.S.) doctoral degree? Was it . . .**

Mark (X) ONLY one

1 ☐ Closely related
2 ☐ Somewhat related → ***SKIP to A38, page 7***
3 ☐ Not related

A36. *(IF NOT RELATED)* **Did these factors influence your decision to work in an area OUTSIDE THE FIELD OF YOUR (FIRST U.S.) DOCTORAL DEGREE?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Pay, promotion opportunities	1 ☐	2 ☐
2. Working conditions (e.g., hours, equipment, working environment)	1 ☐	2 ☐
3. Job location	1 ☐	2 ☐
4. Change in career or professional interests	1 ☐	2 ☐
5. Family-related reasons (e.g., children, spouse's job moved)	1 ☐	2 ☐
6. Job in highest degree field not available	1 ☐	2 ☐
7. Other reason - *Specify* _____	1 ☐	2 ☐

A37. **Which TWO factors in A36 represent your MOST important reasons for working in an area outside the field of your (first U.S.) doctoral degree?** *Enter number of appropriate reason from A36 above*

1. _____ MOST important reason

2. _____ SECOND MOST important reason *(Enter "0" if no second most)*

A38. **The next question is about your work activities on your principal job. Which of the following work activities occupied 10 percent or more of your time during a TYPICAL work week on this job?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Accounting, finance, contracts	1☐	2☐
2. Applied research - study directed toward gaining scientific knowledge to meet a recognized need	1☐	2☐
3. Basic research - study directed toward gaining scientific knowledge primarily for its own sake	1☐	2☐
4. Computer applications, programming, systems development	1☐	2☐
5. Development - using knowledge gained from research for the production of materials, devices	1☐	2☐
6. Design of equipment, processes, structures, models	1☐	2☐
7. Employee relations - including recruiting, personnel development, training	1☐	2☐
8. Managing and supervising	1☐	2☐
9. Production, operations, maintenance (e.g., truck driving, machine tooling, auto/machine repairing)	1☐	2☐
10. Professional services (e.g., health care, counseling, financial services, legal services)	1☐	2☐
11. Sales, purchasing, marketing, customer service, public relations	1☐	2☐
12. Quality or productivity management ..	1☐	2☐
13. Teaching	1☐	2☐
14. Other - *Specify* _____	1☐	2☐

A39. **On which TWO activities in A38, did you work the MOST hours during a typical week on this job?**
Enter number of appropriate activity from A38 above

1. ____ Activity MOST hours
2. ____ Activity SECOND MOST hours *(Enter "0" if no second most)*

A40. **Thinking back to when you completed your highest degree, would you say your work during a TYPICAL week on this principal job is . . .**

Mark (X) ONLY one

1☐ Very similar to what you expected to be doing

2☐ Somewhat similar to what you expected to be doing

3☐ Not very similar to what you expected to be doing

A41. **Did you supervise the work of others as part of your principal job held during the week of April 15?**

MARK "YES": *If you assigned duties to workers AND recommended or initiated personnel actions such as hiring, firing or promoting*

TEACHERS: *Do NOT count students*

1☐ Yes
2☐ No → ***SKIP to A43, page 8***

A42. *(IF YES)* **How many people did you typically . . .**

IF NONE: *Enter "0"*	Number Supervised
1. Supervise DIRECTLY?	_____
2. Supervise through subordinate supervisors?. . .	_____

A43. **Before deductions, what was your basic ANNUAL salary on this job as of the week of April 15, 1997? (Do NOT include bonuses, overtime, or additional compensation for summertime teaching or research)**

IF NOT SALARIED: *Please estimate your earned income, excluding business expenses*

$ _____.00
Basic Annual Salary/Earned Income

A44. **During a typical week on this job, how many hours did you usually work?**

NUMBER OF HOURS PER WEEK _____

A45. **Including paid vacation and paid sick leave, upon how many weeks per year was your salary based?**

NUMBER OF WEEKS PER YEAR _____

A46. **During the week of April 15, 1997, was any of your work on this job supported by CONTRACTS OR GRANTS from the U.S. government?**

FEDERAL EMPLOYEES: *Please answer "No"*

Mark (X) ONLY one

1 ☐ Yes → ***GO to A47***
2 ☐ No → ***SKIP to A48***
3 ☐ Don't Know → ***SKIP to A48***

A47. *(IF YES)* **Which Federal agencies or departments were supporting your work?**

Mark (X) all that apply

1 ☐ Agency for International Development (AID)
2 ☐ Agriculture Department
3 ☐ Commerce Department
4 ☐ Defense Department (DOD)
5 ☐ Department of Education (include NCES, OERI, FIPSE, FIRST)
6 ☐ Energy Department (DOE)
7 ☐ Environmental Protection Agency (EPA)
8 ☐ Health and Human Services Department (Excluding NIH)
9 ☐ Interior Department
10 ☐ National Aeronautics and Space Administration (NASA)
11 ☐ National Institutes of Health (NIH)
12 ☐ National Science Foundation (NSF)
13 ☐ Transportation Department (DOT)
14 ☐ Other - *Specify* _____
15 ☐ DON'T KNOW SOURCE AGENCY

A48. **How would you rate your overall satisfaction with your principal job during the week of April 15th?**

Mark (X) ONLY one

1 ☐ Very satisfied
2 ☐ Somewhat satisfied
3 ☐ Somewhat dissatisfied
4 ☐ Very dissatisfied

A49. **During the week of April 15, 1997, were you working for pay (or profit) at a second job (or business), including part-time, evening, or weekend work?**

1 ☐ Yes
2 ☐ No → *SKIP to A53*

A50. *(IF YES)* **What kind of work were you doing at your second job during the week of April15--that is, what was your occupation?** *Please be as specific as possible, including any area of specialization*

IF YOU HAD MORE THAN TWO JOBS THAT WEEK: *Answer for the job where you worked the second most hours*

_____

_____

_____

A51. **Using the JOB CODES LIST (pages 20-21) choose the code that BEST describes the work you were doing on your second job during the week of April 15.**

CODE | |

NOTE - Job codes range from 010 to 500

A52. **To what extent was your work on this second job related to your (first U.S.) doctoral degree? Was it . . .**

Mark (X) ONLY one

1 ☐ Closely related
2 ☐ Somewhat related
3 ☐ Not related

BEST COPY AVAILABLE

The next few questions ask about your work for pay (or profit) in 1996.

A53. **Turning to 1996, including paid vacation and paid sick leave, how many weeks did you work in 1996?**

0 ☐ ← MARK (X) THIS BOX IF NONE AND SKIP TO A56

NUMBER OF WEEKS WORKED _____

A54. **During the weeks you worked in 1996, how many hours a week did you usually work?**

NUMBER OF HOURS WORKED _____

A55. **Counting all jobs held in 1996, what was your TOTAL EARNED income for 1996, BEFORE deductions?** *Include all wages, salaries, bonuses, overtime, commissions, consulting fees, net income from businesses, summertime teaching or research, postdoctoral appointment, or other work associated with scholarships*

TOTAL 1996
EARNED INCOME $ _____.00

0 ☐ ← MARK (X) THIS BOX IF YOU HAD NO EARNED INCOME IN 1996

A56. **What was your total HOUSEHOLD income before deductions for 1996?** *In addition to any income listed in A55, please include income from such sources as dividends, interest, social security, pensions, and income earned from your spouse.*

TOTAL 1996
HOUSEHOLD INCOME $ _____.00

0 ☐ ← MARK (X) THIS BOX IF YOU HAD NO HOUSEHOLD INCOME IN 1996

PART B - Past Employment

The next few questions will help us better understand employment changes over time.

B1. **Were you working for pay (or profit) during BOTH of these time periods–the week of April 15, 1995 AND the week of April 15, 1997?**

IF YOU WERE A STUDENT: *Do NOT count financial aid awards with no work requirement*

1 ☐ Yes
2 ☐ No → *SKIP to C1*

B2. *(IF YES)* **During these two time periods–the week of April 15, 1995, and the week of April 15, 1997–were you working for . . .**

Mark (X) ONLY one

1 ☐ Same employer AND same job → *SKIP to C1*
2 ☐ Same employer BUT different job
3 ☐ Different employer BUT same job
4 ☐ Different employer AND different job

B3. *(IF DIFFERENT)* **Why did you change your employer or your job?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Pay, promotion opportunities	1 ☐	2 ☐
2. Working conditions (e.g., hours, equipment, working environment)	1 ☐	2 ☐
3. Job location	1 ☐	2 ☐
4. Change in career or professional interests	1 ☐	2 ☐
5. Family-related reasons (e.g., children, spouse's job moved)	1 ☐	2 ☐
6. School-related reasons (e.g., returned to school, completed a degree)	1 ☐	2 ☐
7. Laid off or job terminated (includes company closings, mergers, buyouts or grant or contract ended)	1 ☐	2 ☐
8. Retired	1 ☐	2 ☐
9. Other reason - *Specify* _____	1 ☐	2 ☐

PART C - Other Work and Career Related

C1. **How concerned are you that you might lose your job in the next 12 months?**

Mark (X) ONLY one

1 ☐ Very concerned
2 ☐ Somewhat concerned
3 ☐ Not very concerned

C2. **How concerned are you that someone in your household, other than you, might lose their job in the next 12 months?**

0 ☐ – MARK (X) THIS BOX IF NO OTHER WORKING ADULT IN HOUSEHOLD AND GO TO C3

Mark (X) ONLY one

1 ☐ Very concerned
2 ☐ Somewhat concerned
3 ☐ Not very concerned

C3. **Have you ever been offered a buy-out or what is often called "early retirement"–that is, a cash settlement to induce employees to voluntarily give up a job?**

Mark (X) ONLY one

1 ☐ Yes, and accepted the offer
2 ☐ Yes, but did not accept the offer
3 ☐ No

C4. **Since completing your (first) bachelor's degree, have you ever lost or left a job because your employer closed, moved or underwent restructuring, downsizing or major layoffs?**

MARK "YES": *If a partnership or self-employed business closed for economic reasons*

1 ☐ Yes
2 ☐ No → ***SKIP to C9***

C5. ***(IF LOST OR LEFT JOB)*** **For which of the following reasons did you lose or leave that job (or jobs)?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Your self-operated business ended	1 ☐	2 ☐
2. Your company or the facility or agency where you worked closed down	1 ☐	2 ☐
3. Your company or the facility or agency where you worked moved to another location	1 ☐	2 ☐
4. The work or services of your company or the facility or agency where you worked was reorganized or restructured	1 ☐	2 ☐
5. Your company or the facility or agency where you worked was taken over by another organization	1 ☐	2 ☐
6. Your company or the facility or agency where you worked had insufficient business, revenue or work	1 ☐	2 ☐
7. Some other reason - *Specify* _____	1 ☐	2 ☐

C6. **In what year did you lose or leave that job—if more than one, please answer for the most recent occurrence.**

Year
19 |

C7. **From the time you actively began your search, about how many months did it take to find a new job?** *Answer for most recent occurrence*

0 ☐ ← MARK (X) THIS BOX IF YOU HAVE NOT FOUND ANOTHER JOB AND SKIP TO C9

NUMBER OF MONTHS _____
(Enter "0" if less than one month)

C8. **Compared to the job you had, did your new job offer you significantly more, about the same, or significantly less in terms of:**

	Significantly More	About the Same	Significantly Less
a. Salary	1 ☐	2 ☐	3 ☐
b. Level of responsibility	1 ☐	2 ☐	3 ☐
c. Utilizing your knowledge or skills	1 ☐	2 ☐	3 ☐

C9. **If you had the chance to do it over again, knowing what you do now, how likely is it that you would choose the same field of study for your highest degree?**

1 ☐ Very likely
2 ☐ Somewhat likely
3 ☐ Not at all likely

C10. **During the past year, did you attend any professional society or association meetings or professional conferences?** *Include regional, national, or international meetings*

1 ☐ Yes
2 ☐ No

C11. **To how many national or international professional societies or associations do you currently belong?**

Number _____ **OR** 0 ☐ NONE

C12. **During the past year, did you attend any WORK-RELATED workshops, seminars, or other work-related training activities?** *Do NOT include college courses - these will be discussed in PART D, page 13*

Do NOT include professional meetings unless you attended a special training session conducted at the meeting/conference

1 ☐ Yes
2 ☐ No → ***SKIP to D1, page 13***

C13. *(IF YES)* **During the past year, in which of the following areas did you attend work-related workshops, seminars, or other work-related training activities? In those areas marked "yes," please answer the follow-up questions.**

Types of Work-Related Training *For Any Training Marked "Yes": Answer A-C*	NO ↓	YES ↓	**A** Record Total Number of Days in Training	**B** Did you pay for any of this training yourself? NO ↓	YES ↓	**C** Number of Training Days You Paid For
1. Management or supervisor training...	2 ☐	1 ☐ →	_____	2 ☐	1 ☐ →	_____
2. Training in your occupational field....	2 ☐	1 ☐ →	_____	2 ☐	1 ☐ →	_____
3. General professional training (e.g., public speaking, business writing)....	2 ☐	1 ☐ →	_____	2 ☐	1 ☐ →	_____
4. Other work-related training - *Specify* _____	2 ☐	1 ☐ →	_____	2 ☐	1 ☐ →	_____

C14. **For which of the following reasons did you attend training activities during the past year?**

Mark (X) Yes or No for each

	YES ↓	NO ↓
1. To facilitate a change in your occupational field	1 ☐	2 ☐
2. To gain FURTHER skills or knowledge in your occupational field	1 ☐	2 ☐
3. For licensure/certification	1 ☐	2 ☐
4. To increase opportunities for promotion/advancement/higher salary	1 ☐	2 ☐
5. To learn skills or knowledge needed for a recently acquired position	1 ☐	2 ☐
6. Required or expected by employer	1 ☐	2 ☐
7. Other - *Specify* _____	1 ☐	2 ☐

C15. **What was your most important reason for attending training activities?**
Enter number of appropriate reason from C14 above

MOST IMPORTANT REASON FROM C14 _____

PART D - Background Information

D1. **Between April 1995 and April 1997, did you take any college or university courses or enroll in a college or university for other reasons, such as completing a Master's or PhD?**

1 ☐ Yes
2 ☐ No → *SKIP to E1, page 14*

D2. ***(IF YES)*** **In which college or university department were you primarily taking classes or doing research, etc. (e.g., English, chemistry)?**

DEPARTMENT _____

D3. **During that time, toward what degree or certificate, if any, were you (or are you) working?**

0 ☐ – MARK (X) THIS BOX IF NO SPECIFIC DEGREE OR CERTIFICATE AND SKIP TO D7, PAGE 14.

IF MORE THAN ONE APPLIES: *Mark the highest level*

Mark (X) ONLY one

1 ☐ Bachelor's degree
2 ☐ Post baccalaureate certificate
3 ☐ Master's degree (including MBA)
4 ☐ Post master's certificate
5 ☐ Doctorate (e.g., Ph.D., D.S.C, D.Sc., Ed.D.)
6 ☐ Other professional degree (e.g., JD, LLB, ThD, MD, DDS) - *Specify*

_____

7 ☐ Other - *Specify*

_____

D4. **Between April 1995 and April 1997, did you complete a degree or certificate?**

1 ☐ Yes
2 ☐ No → *SKIP to D7, page 14*

D4a. ***(IF YES)*** **What degree or certificate did you receive?** *From D3 enter the number of appropriate TYPE OF DEGREE/CERTIFICATE received*

TYPE OF DEGREE/
CERTIFICATE FROM D3 _____

D5. **In what month and year was this degree or certificate awarded?**

IF YOU COMPLETED MORE THAN ONE: *Enter the date for the highest degree or certificate awarded*

Month | Year
| 19 |

D6. **From which academic institution did you receive this degree or certificate?**

School name _____

City/Town _____

State/Foreign Country _____

D7. **What was your primary field of study during that time?**

PRIMARY FIELD OF STUDY

_____

_____

_____

D8. **For which of the following reasons were you taking classes or enrolled between April 1995 and April 1997?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. To gain further education before beginning a career	1☐	2☐
2. To prepare for graduate school	1☐	2☐
3. To change your academic or occupational field	1☐	2☐
4. To gain FURTHER skills or knowledge in your academic or occupational field	1☐	2☐
5. For licensure/certification	1☐	2☐
6. To increase opportunities for promotion, advancement, or higher salary	1☐	2☐
7. Required or expected by employer	1☐	2☐
8. For leisure/personal interest	1☐	2☐
9. Other - *Specify* _____	1☐	2☐

D9. **Were ANY of your school-related costs for taking college or university courses during this time paid for by an employer?**

1☐ Yes
2☐ No

PART E - Recent Doctorate Recipients

E1. **Did you receive your (first U.S.) doctoral degree any time between June 1990 and June 1996?**

1☐ Yes
2☐ No → *SKIP to F1, page 18*

The next questions are about the initial career experiences of recent doctorate recipients. The degree we are referring to is the first U.S. doctorate.

E2. **Thinking back to when you *began* your doctoral program, what kind of work did you want to do after completing your doctorate?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Teaching	1☐	2☐
2. Research	1☐	2☐
3. Management/administration	1☐	2☐
4. Professional practice	1☐	2☐
5. Other - *Specify* _____	1☐	2☐

E3. **When you *began* your doctoral program, in what type of employment setting did you MOST want to work upon completing your doctorate?**

Mark (X) ONLY one

1☐ College or university
2☐ Business or industry
3☐ Government
4☐ Nonprofit organization
5☐ Self-employed
6☐ Elementary or secondary school
7☐ Other - *Specify* _____

E4. How did you think a doctoral degree would help your career? Did you think it would help you . . .

Mark (X) ONLY one

1 ☐ Begin your first career
2 ☐ Further a career you had already started
3 ☐ Change careers
4 ☐ (Help) in ways not related to your career

E5. At the time you completed your doctorate, among those with your training and experience, would you say the . . .

a. Job market for *postdocs* was . . .

1 ☐ Excellent
2 ☐ Good
3 ☐ Fair
4 ☐ Very poor
6 ☐ Don't know or not applicable

b. Job market for positions *other than postdocs* was . . .

1 ☐ Excellent
2 ☐ Good
3 ☐ Fair
4 ☐ Very poor
5 ☐ Don't know or not applicable

E6. Between completing your doctorate and the week of April 15, have you held or accepted what you consider to be a "career path" job?

A "career path" job is a job that will help you in your future career plans or a job in the field in which you want to make your career

1 ☐ Yes, held a career path job → ***SKIP to E8***
2 ☐ Yes, accepted but not begun → ***SKIP to E9***
3 ☐ No, neither held nor accepted

E7. Since completing your doctorate and the week of April 15, have you sought a "career path" job?

1 ☐ Yes → ***SKIP to E9***
2 ☐ No → ***SKIP to E18, page 17***

E8. When did you begin working on that job? Was it . . .

1 ☐ Prior to working on your doctorate
2 ☐ While you were working on your doctorate → ***SKIP to E13, page 16***
3 ☐ After completing your doctorate

E9. To what extent, if at all, has or was your search for a career path job limited by . . .

Mark (X) ONLY one for each item

	A Great Deal	Some-what	Not Much or Not At All	Not Appli-cable
1. Family responsibilities . .	1 ☐	2 ☐	3 ☐	4 ☐
2. Spouse's career or employment	1 ☐	2 ☐	3 ☐	4 ☐
3. Debt burden from under-graduate or graduate degrees	1 ☐	2 ☐	3 ☐	4 ☐
4. Desire to not relocate or move to place of job . . .	1 ☐	2 ☐	3 ☐	4 ☐
5. Suitable job not available	1 ☐	2 ☐	3 ☐	4 ☐
6. Other - *Specify*	1 ☐	2 ☐	3 ☐	4 ☐

_____

_____

E10. Which of the following resources did you use for seeking or finding your first career path job after receiving your doctorate?

If you have not yet obtained a career path job, please indicate the sources used in your job search

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Faculty or advisors	1☐	2☐
2. Professional recruiters such as "head hunters"	1☐	2☐
3. College or department placement office	1☐	2☐
4. Professional meetings	1☐	2☐
5. Electronic postings	1☐	2☐
6. Newspapers	1☐	2☐
7. Professional journals	1☐	2☐
8. Informal channels through colleagues or friends	1☐	2☐
9. Direct contacts you initiated with company (e.g., sent unsolicited vita)	1☐	2☐
10. Other - *Specify* _____	1☐	2☐

E11. Which TWO resources in E10 were most responsible for finding your first career path job? *Enter number of appropriate resource from E10 above*

0☐ – MARK (X) THIS BOX IF YOU HAVE NOT HELD OR ACCEPTED A CAREER PATH JOB SINCE RECEIVING YOUR DOCTORATE AND SKIP TO E18, PAGE 17

1. _____ MOST important resource

2. _____ SECOND MOST important resource *(Enter "0" if no second resource)*

E12. How many months elapsed between the time you completed your doctorate and the time you accepted your first career path job?

IF YOUR CAREER PATH JOB BEGAN WHILE YOU WERE COMPLETING OR WITHIN ONE MONTH OF RECEIVING YOUR DOCTORAL DEGREE: *Enter "0"*

NUMBER OF MONTHS _____ → ***SKIP to E14***

E13. How did completing your doctoral degree affect the following aspects of that job you held?

Mark (X) ONLY one for each item

	A Great Deal	Some-what	Not Much or Not At All
1. Salary level	1☐	2☐	3☐
2. Level of responsibility	1☐	2☐	3☐
3. Job security	1☐	2☐	3☐
4. Degree of interesting or rewarding work	1☐	2☐	3☐
5. Degree of technically demanding work	1☐	2☐	3☐
6. Management activities expected	1☐	2☐	3☐
7. Other - *Specify* _____	1☐	2☐	3☐

E14. Were you still holding this first career path job during the week of April 15, 1997?

1☐ Yes – ***SKIP to E18, page 17***

2☐ No, changed jobs

3☐ No, not employed during the week of April 15 → ***GO to E15, page 17***

E15. Thinking about the relationship between your work and your education, to what extent was your work on your first career path job related to your doctoral degree field?

Mark (X) ONLY one

1 ☐ Closely related
2 ☐ Somewhat related → *SKIP to E18*
3 ☐ Not related

E16. *(IF NOT RELATED)* **Did any of these factors influence your decision to work in an area outside your doctoral degree field?**

Mark (X) Yes or No for each	YES ↓	NO ↓
1. Pay or promotion opportunities	1 ☐	2 ☐
2. Working conditions (e.g., hours, equipment, working environment)	1 ☐	2 ☐
3. Job location	1 ☐	2 ☐
4. Change in career or professional interests	1 ☐	2 ☐
5. Family-related reasons (e.g., children, spouse's job moved)	1 ☐	2 ☐
6. Job in doctoral field not available	1 ☐	2 ☐
7. Other reasons - *Specify* _____ _____	1 ☐	2 ☐

E17. Which TWO factors in E16 represent your MOST important reasons for working in an area outside your doctoral degree field? *Enter number of appropriate factor from E16 above*

1. _____ MOST important reason
2. _____ SECOND MOST important reason *(Enter "0" if no second reason)*

E18. In terms of preparing you for a career, how adequate was your doctoral program or training in each of the following areas?

Mark (X) ONLY one for each

	Very Adequate	Somewhat Adequate	Not Adequate	Not Applicable
1. General problem solving skills	1 ☐	2 ☐	3 ☐	4 ☐
2. Subject matter knowledge	1 ☐	2 ☐	3 ☐	4 ☐
3. Oral communication skills	1 ☐	2 ☐	3 ☐	4 ☐
4. Teaching skills	1 ☐	2 ☐	3 ☐	4 ☐
5. Collaboration and team work skills	1 ☐	2 ☐	3 ☐	4 ☐
6. Quantitative skills	1 ☐	2 ☐	3 ☐	4 ☐
7. Writing skills	1 ☐	2 ☐	3 ☐	4 ☐
8. Computer skills	1 ☐	2 ☐	3 ☐	4 ☐
9. Research integrity/ ethics	1 ☐	2 ☐	3 ☐	4 ☐
10. Establishing contacts with colleagues in field	1 ☐	2 ☐	3 ☐	4 ☐
11. Management or administrative skills	1 ☐	2 ☐	3 ☐	4 ☐

E19. In which TWO areas in E18 would you have liked to have had more training or emphasis in your doctoral program?

0 ☐ – MARK (X) THIS BOX IF NONE (NO ADDITIONAL TRAINING OR EMPHASIS DESIRED)

1. _____ FIRST area
2. _____ SECOND area *(Enter "0" if no second area)*

E20. Overall, how satisfied are you with the doctoral program you completed?

Mark (X) ONLY one

1 ☐ Very satisfied
2 ☐ Somewhat satisfied
3 ☐ Somewhat dissatisfied
4 ☐ Very dissatisfied

PART F - Demographic Information

F1. **As of the week of April 15 were you . . .**

Mark (X) ONLY one

1 ☐ Married
2 ☐ Widowed
3 ☐ Separated
4 ☐ Divorced
5 ☐ Never Married

→ ***SKIP to F4***

F2. ***(IF MARRIED)*** **During the week of April 15, was your spouse working for pay (or profit) at a full-time or part-time job?**

1 ☐ Yes, full-time
2 ☐ Yes, part-time
3 ☐ No → ***SKIP to F4***

F3. ***(IF YES)*** **Did your spouse's duties on this job require the technical expertise of a bachelor's degree or higher in . . .**

Mark (X) Yes or No for each	YES	NO
1. Engineering, computer science, math or the natural sciences, ...	1 ☐	2 ☐
2. The social sciences, ...	1 ☐	2 ☐
3. Some other field (e.g., health or business) - *Specify* _____	1 ☐	2 ☐

F4. **During the week of April 15, did you have any children living with you as part of your family?**

Only count children who lived with you at least 50 percent of the time

1 ☐ Yes → ***GO to F5***
2 ☐ No → ***SKIP to F6***

F5. ***(IF YES)*** **How many of these children living with you as part of your family were . . .**

IF NO CHILDREN IN A CATEGORY: *Enter "0"*

	Number of Children
1. Under age 2	_____
2. Aged 2-5	_____
3. Aged 6-11	_____
4. Aged 12-17	_____
5. Aged 18 or older	_____

F6. **During the week of April 15, 1997, were you living in the United States or one of its territories, or were you living in another country?**

1 ☐ United States or one of its territories
2 ☐ Another country

F7. **As of the week of April 15, 1997 were you a . . .**

Mark (X) ONLY one

<u>U.S. Citizen</u>

1 ☐ Native Born
2 ☐ Naturalized

→ ***SKIP to F9***

<u>Non-U.S. Citizen</u>

3 ☐ With a Permanent U.S. Resident Visa
4 ☐ With a Temporary U.S. Resident Visa
5 ☐ Living outside the United States

F8. ***(IF NON-U.S. CITIZEN)*** **Of which country are you a citizen?**

COUNTRY _____

F9. **What is your birthdate?**

Month | Day | Year 19 |

The next question is designed to help us better understand the career paths of individuals with different physical abilities.

F10. **What is the USUAL degree of difficulty you have with . . .**

	MARK (X) ONE FOR EACH				
	None ↓	Slight ↓	Moderate ↓	Severe ↓	Unable to Do ↓
1. SEEING words or letters in ordinary newsprint (with glasses/contact lenses if you usually wear them)	1☐	2☐	3☐	4☐	5☐
2. HEARING what is normally said in conversation with another person (with hearing aid, if you usually wear one)	1☐	2☐	3☐	4☐	5☐
3. WALKING without human or mechanical assistance or using stairs	1☐	2☐	3☐	4☐	5☐
4. LIFTING or carrying something as heavy as 10 pounds, such as a bag of groceries	1☐	2☐	3☐	4☐	5☐

F11. 0☐ – MARK (X) THIS BOX IF YOU ANSWERED "NONE" TO ALL ACTIVITIES IN F10 AND SKIP TO F13

F12. **What is the earliest age at which you FIRST began experiencing ANY difficulties in ANY of these areas?**

AGE | | OR 0☐ SINCE BIRTH

F13. **In case we need to clarify some of the information you have provided, please list a phone number (and an e-mail address if applicable) where you can be reached.**

Daytime Area Code | | - | | - Number | | |

Evening Area Code | | - | | - Number | | |

E-mail Address _____

F14. **Since we are interested in how education and employment change over time, we may be recontacting you in 1999. To help us contact you, please provide the name, address, and telephone number of two people who are likely to know where you can be reached. DO NOT INCLUDE SOMEONE WHO LIVES IN YOUR HOUSEHOLD.** *As with all the information provided in this questionnaire, complete confidentiality will be provided. These people will only be contacted if we have trouble contacting you in 1999.*

First Name MI Last Name _____

Number and Street _____

City/Town _____ State _____ Zip Code _____

Country (If outside U.S.) _____

Area Code | | - Number | | | | |

First Name MI Last Name _____

Number and Street _____

City/Town _____ State _____ Zip Code _____

Country (If outside U.S.) _____

Area Code | | - Number | | | | |

F15. PLEASE TURN TO THE BACK COVER FOR THE LAST QUESTION (F16).

JOB CODES LIST

This list is ordered ALPHABETICALLY. The titles in bold type are broad job categories. To make sure you have found the BEST code, please review ALL broad categories before making your choice. If you cannot find the code that BEST describes your job, use the "OTHER" code under the most appropriate broad category in bold print. If none of the codes fit your job, use Code 500.

010 **Artists, Broadcasters, Editors, Entertainers, Public Relations Specialists, Writers**

Biological/Life Scientists
021 Agricultural and food scientists
022 Biochemists and biophysicists
023 Biological scientists (e.g., botanists, ecologists, zoologists)
024 Forestry and conservation scientists
025 Medical scientists (excluding practitioners)
026 Technologists & technicians in the biological/life sciences
027 OTHER biological/life scientists

Clerical/Administrative Support
031 Accounting clerks, bookkeepers
032 Secretaries, receptionists, typists
033 OTHER administrative (e.g., record clerks, telephone operators)

040 **Clergy & Other Religious Workers**

Computer Occupations (Also see 173)
*** Computer engineers (See 087, 088 under Engineering)
051 Computer programmers (business, scientific, process control)
052 Computer system analysts
053 Computer scientists, except system analysts
054 Information systems scientists or analysts
055 OTHER computer, information science occupations

*** **Consultants** *(Select the code that comes closest to your usual area of consulting)*

070 **Counselors, Educational & Vocational** (Also see 236)

Engineers, Architects, Surveyors
081 Architects
*** Engineers (Also see 100-103)
082 Aeronautical, aerospace, astronautical engineer
083 Agricultural engineer
084 Bioengineering & biomedical engineer
085 Chemical engineer
086 Civil, including architectural & sanitary engineer

*** Engineers (continued)
087 Computer engineer - hardware
088 Computer engineer - software
089 Electrical, electronic engineer
090 Environmental engineer
091 Industrial engineer
092 Marine engineer or naval architect engineer
093 Materials or metallurgical engineer
094 Mechanical engineer
095 Mining or geological engineer
096 Nuclear engineer
097 Petroleum engineer
098 Sales engineer
099 Other engineer
*** Engineering Technologists and Technicians
100 Electrical, electronic, industrial, mechanical
101 Drafting occupations, including computer drafting
102 Surveying and mapping
103 OTHER engineering technologists and technicians
104 Surveyors

110 **Farmers, Foresters & Fishermen**

Health Occupations
111 Diagnosing/Treating Practitioners (e.g., dentists, optometrists, physicians, psychiatrists, podiatrists, surgeons, veterinarians)
112 Registered nurses, pharmacists, dieticians, therapists, physician assistants
236 Psychologists, including clinical
113 Health Technologists & Technicians (e.g., dental hygienists, health record technologist/technicians, licensed practical nurses, medical or laboratory technicians, radiologic technologists/technicians)
114 OTHER health occupations

120 **Lawyers, Judges**

130 **Librarians, Archivists, Curators**

Managers, Executives, Administrators (Also see 151-153)
141 Top and mid-level managers, executives, administrators (people who manage other managers)
*** All other managers, including the self-employed - *Select the code that comes closest to the field you manage*

JOB CODES LIST - Continued

Management-Related Occupations (Also see 141)
151 Accountants, auditors, and other financial specialists
152 Personnel, training, and labor relations specialists
153 OTHER management related occupations

Mathematical Scientists
171 Actuaries
172 Mathematicians
173 Operations research analysts, modeling
174 Statisticians
175 Technologists and technicians in the mathematical sciences
176 OTHER mathematical scientists

Physical Scientists
191 Astronomers
192 Atmospheric and space scientists
193 Chemists, except biochemists
194 Geologists, including earth scientists
195 Oceanographers
196 Physicists
197 Technologists and technicians in the physical sciences
198 OTHER physical scientists

*** Research Associates/Assistants
(Select the code that comes closest to your field)

Sales and Marketing
200 Insurance, securities, real estate, & business services
201 Sales Occupations - Commodities Except Retail (e.g., industrial machinery/equipment/supplies, medical and dental equip/supplies)
202 Sales Occupations - Retail (e.g., furnishings, clothing, motor vehicles, cosmetics)
203 OTHER marketing and sales occupations

Service Occupations, Except Health (Also see 111-114)
221 Food Preparation and Service (e.g., cooks, waitresses, bartenders)
222 Protective services (e.g., fire fighters, police, guards)
223 OTHER service occupations, except health

Social Scientists
231 Anthropologists
232 Economists
233 Historians, science and technology
234 Historians, except science and technology
235 Political scientists
236 Psychologists, including clinical (Also see 070)
237 Sociologists
238 OTHER social scientist

240 Social Workers

Teachers/Professors
251 Pre-Kindergarten and kindergarten
252 Elementary
253 Secondary - computer, math, or sciences
254 Secondary - social sciences
255 Secondary - other subjects
256 Special education - primary and secondary
257 OTHER precollegiate area
*** Postsecondary
- 271 Agriculture
- 272 Art, Drama, and Music
- 273 Biological Sciences
- 274 Business Commerce and Marketing
- 275 Chemistry
- 276 Computer Science
- 277 Earth, Environmental, and Marine Science
- 278 Economics
- 279 Education
- 280 Engineering
- 281 English
- 282 Foreign Language
- 283 History
- 284 Home Economics
- 285 Law
- 286 Mathematical Sciences
- 287 Medical Science
- 288 Physical Education
- 289 Physics
- 290 Political Science
- 291 Psychology
- 292 Social Work
- 293 Sociology
- 294 Theology
- 295 Trade and Industrial
- 296 OTHER health specialties
- 297 OTHER natural sciences
- 298 OTHER social sciences
- 299 OTHER Postsecondary

Other Professions
401 Construction trades, miners & well drillers
402 Mechanics and repairers
403 Precision/production occupations (e.g., metal workers, woodworkers, butchers, bakers, printing occupations, tailors, shoemakers, photographic process)
404 Operators and related occupations (e.g., machine set-up, machine operators and tenders, fabricators, assemblers)
405 Transportation/material moving occupations

500 OTHER OCCUPATIONS (Not Listed)

F16. **Is the name and address information on the label the best one for us to use for any future mailings?**

1 ☐ Yes

2 ☐ No → *Please make name and address changes as needed below. Please print clearly.*

Title | First Name | Middle Initial | Last Name

Number and Street/Apt. No. | City/Town | State | ZIP Code Plus 4

Country (If Outside U.S.)

THANK YOU FOR COMPLETING THE QUESTIONNAIRE

Please return the completed form in the envelope provided. If you lose the envelope and want another, call 1-800-327-7508. Our address is:

Survey of Doctorate Recipients
National Opinion Research Center
at the University of Chicago
1525 East 55th Street
Chicago, IL 60615

NSF Division of Science Resources Studies NSF 00-308

Order Form

Please send me the following reports, free of charge:

Title	NSF No.	
Data Brief, "Healthy Economy Yields Even Lower Unemployment Rate for Doctoral Scientists and Engineers"	99-340	☐
Doctoral Scientists and Engineers in the United States: 1995 Profile	99-305	☐

Check here to receive the latest SRS *Publications List.* ☐

Name	
Address	
City	
State	Zip
Phone	Fax

To order SRS publications, fill out order form, cut on dotted line, fold in half, tape, and drop in the mail. No postage is necessary. Form can also be sent via fax, at 703-306-0510.

NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE $300

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 12806 ARLINGTON, VA

National Science Foundation
Division of Science Resources Studies
Publications Unit
4201 Wilson Blvd., Suite 965
Arlington, VA 22203-9966

Fold here

Please tape here (do not staple)

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

REPRODUCTION BASIS

☐ This document is covered by a signed "Reproduction Release (Blanket) form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☑ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").