

Doctorate Recipients from United States Universities:



Summary Report 1998

NATIONAL ENDOWMENT FOR THE
HUMANITIES



Survey of Earned Doctorates

SPONSORED BY THE NATIONAL SCIENCE FOUNDATION, THE NATIONAL INSTITUTES OF HEALTH, THE NATIONAL ENDOWMENT FOR THE HUMANITIES, THE U.S. DEPARTMENT OF EDUCATION, AND THE U.S. DEPARTMENT OF AGRICULTURE

HIGHLIGHTS

This report presents data about recipients of research doctorates awarded by U.S. universities from July 1, 1997, through June 30, 1998. The information is taken from the 1998 Survey of Earned Doctorates, an annual census of new research doctorate recipients.

- During 1998, 387 universities in the United States conferred a total of 42,683 doctorates, slightly more (0.3 percent) than in 1997. The number of doctorates earned has increased for 13 consecutive years. U.S. citizens earned 27,352 of the 1998 research doctorates.
- The largest number of doctorates awarded was in the broad field of life sciences, in which 8,540 Ph.D.s were earned. The number of degrees conferred in the other broad areas were 7,075 in social sciences; 6,739 in the physical sciences; 6,559 in education; 5,919 in engineering; 5,499 in humanities; and 2,352 in business and other professional areas. The number of doctorates granted in the fields of humanities and engineering has increased the most over the past decade (55 percent and 41 percent).
- Women received 17,856 doctorates, or 41.8 percent of all doctorates granted in 1998, the highest percentage ever for women. Over the past 40 years, the rate of growth for female doctorates has averaged 7.5 percent per year, compared with just under 3 percent annually for male doctorates. The number of men earning doctorates in 1998 declined for the second straight year. Among U.S. citizens, 47.7 percent of doctorates were earned by women. By broad field the percentages of research doctorates earned by women in 1998 were 62.8 percent in education, 54.2 in the social sciences, 48.6 in the humanities, 45.4 percent in the life sciences, 41.6 percent in business/professional, 23.7 percent in the physical sciences, and 13.0 in engineering.
- U.S.-citizen racial/ethnic minority groups earned 14.7 percent of the doctorates earned by U.S. citizens in 1998—the largest percentage ever. Among the U.S. citizens who identified their race/ethnicity (96.9 percent), blacks earned 1,467 doctorates; Hispanics, 1,190; Asians (including Pacific Islanders), 1,168; and American Indians (including Alaskan Natives), 189. Blacks were the predominant minority group receiving doctorates in education, and Asian Americans predominated in engineering.
- U.S. citizens received 71.3 percent of all doctorates earned in 1998 by individuals with known citizenship status (92.7 percent of all recipients). China was the country of origin for the largest number of non-U.S. doctorate recipients with 2,571, followed by India with 1,259, Taiwan with 1,110, Korea with 710, and Canada with 448. By broad field, the percentage of doctorates earned by U.S. citizens ranged from 47.0 percent in engineering and 58.5 percent in physical sciences, to 82.9 percent in humanities and 90.3 percent in education.
- Median time to receiving the doctorate since earning the baccalaureate was 10.4 years in 1998. Median time to degree since first enrollment in any graduate program was 7.3 years. The typical Ph.D. recipient was just under 34 years of age at the time the degree was conferred.
- Three in five (60.6 percent) of all doctorate recipients in 1998 reported fellowships or teaching/research assistantships from programs or institutions as their primary source of financial support for graduate education. Only half (49.1 percent) of all doctorate recipients reported educational indebtedness (loans) at the time of graduation.
- The percentage of Ph.D.s reporting definite postgraduation commitments for employment or study was 69.6 percent in 1998—about 70 percent of them will work and 30 percent will continue as postdoctorates. Among U.S. citizens and those holding permanent visas with firm employment plans, 50 percent were entering academe as their planned work sector. About one-fourth indicated industry or self-employment; 8.2 percent said some level of government; while the remaining 17.4 percent indicated “other.”

Doctorate Recipients from United States Universities: Summary Report 1998

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NOTICE

This report is based on data collected in the Survey of Earned Doctorates (SED) conducted for the National Science Foundation (NSF), the National Institutes of Health (NIH), the National Endowment for the Humanities (NEH), the U.S. Department of Education (USED), and the U.S. Department of Agriculture (USDA) by the National Opinion Research Center (NORC) under NSF Contract No. SRS-9712655. Findings in this publication represent analyses developed by NORC, which have been reviewed, but not necessarily verified, by the participating Federal agencies and do not necessarily reflect the views of the sponsoring agencies.

NSF publications from the Survey of Earned Doctorates and the Doctorate Records File are available free on request. (See inside back cover.) Standardized tables on baccalaureate origins of Ph.D.s by major field of doctorate and trend tables on citizenship, race/ethnicity, and sex of Ph.D.s by fine field of doctorate are available for a fee. Customized tables can also be prepared at cost. For more information, please contact:

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***** IMPORTANT NOTICE *****

The estimates reported for the Survey of Earned Doctorates (SED) are simple tabulations of all available information, with no adjustment for nonresponse. Therefore, differences in response rates from year to year can produce numerical fluctuations that are unrelated to real trends.

Although response to the SED has been as high as 95 to 98 percent over time, it declined to 92 percent during the 1980s. In an effort to improve the response rate, the survey methodology was modified in the years after 1989. Response rose, stabilizing around 95 percent from 1991 to 1995. However, the response rates for 1996 and 1997 were 92.8 percent and 91.5 percent, respectively. This year, the response rate again was 91.5 percent. (*Note:* These percentages represent *self-report rates*, that is, the proportion of questionnaires completed by doctorate recipients. While survey forms containing partial information filled in by either the doctoral institution or the survey contractor are not included in these rates, tables in this report incorporate the available data from these sources.) The self-report rate for 1998 may increase slightly in the next year if additional questionnaires are received from doctorate recipients. See appendix C for a table giving survey response rates from 1967 to 1998.

Item response rates have shown a pattern of improvement since 1990—a natural consequence of the increase in the overall self-report rate, as well as a result of format revisions to the questionnaire and follow-ups for missing information. In 1990, new follow-up procedures were implemented to increase coverage of several variables: birth year, sex, race/ethnicity, citizenship status, country of citizenship, baccalaureate year and institution, and postgraduation plans. Response rates for these variables have since improved—especially for citizenship and race/ethnicity, resulting in an increase in the reported numbers of minority Ph.D.s. (However, for 1997 and 1998 the citizenship response rate of 92 percent is lower than it was in 1990-1996.) Whether or not individuals completed the survey questionnaire, the following four data items are available for most all recipients: sex and Ph.D. institution, field, and year.

The data for a given year are updated the following year with any responses received *after* survey closure. Postsurvey adjustment was most significant for 1990 and 1991 Ph.D.s, with the largest impact on the number of blacks. For both of these years, the total number of black Ph.D.s increased by about 7.5 percent in the year after survey closure. The survey cycle was then extended to allow receipt of more follow-up information before closure, resulting in much smaller postsurvey adjustments for the 1992 through 1995 data (a 1.4 percent increase in black Ph.D.s for 1992, a 0.2 percent increase for 1993, a 0.5 percent increase for 1994, and a 1.5 percent increase for 1995).

Adjustments to data are presented in reports subsequent to the initial report for a survey. For example, updates for 1994 appeared in *Summary Report 1995*. Updates to 1998 data will be presented in next year's report.

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DOCTORATE RECIPIENTS FROM UNITED STATES UNIVERSITIES: SUMMARY REPORT 1998

Introduction

Doctorate Recipients from United States Universities: Summary Report 1998 is the thirty-second in a series of reports on research doctorates awarded by colleges and universities in the United States.¹ The data presented in this report are from the annual Survey of Earned Doctorates (SED), a census of research doctoral recipients who earned their degrees between July 1, 1997, and June 30, 1998. This survey, conducted since 1958, is sponsored by five Federal agencies: the National Science Foundation, the National Institutes of Health, the National Endowment for the Humanities, the U.S. Department of Education, and the U.S. Department of Agriculture. All survey responses become part of the Doctorate Records File (DRF), a virtually complete database on doctorate recipients from 1920 to 1998.

The overall response rate for the 1998 survey was 91.5 percent.² In a few item areas, missing data could affect the reliability of the conclusions; those items are indicated explicitly when they occur. Please consult the “Important Notice” on page vii for further details.

Organization

Summary Report 1998 begins by reviewing overall trends in research doctorates awarded by U.S. universities and continues by discussing trends in the seven broad fields in which research doctorate recipients earn their degrees. Trends in doctorate awards by sex, race/ethnicity, and citizenship are described next, and the report concludes with discussion of time-to-degree statistics, sources of financial support during graduate school, and the postgraduation status and plans of doctorate recipients at the time the degree is awarded.

A detailed profile of the indebtedness reported by doctorate recipients follows the main report. This special section assesses indebtedness by race/ethnicity, institution type, and citizenship, as well as examining the relationship between indebtedness and sources of support, postgraduation status, and such demographic factors as marital status and number of dependents. The tabulations in this section are limited, for the most part, to U.S. citizens, because their data on indebtedness are relevant to Federal policies on graduate financial aid.

Figures displaying selected trend data accompany the brief narratives of key survey findings. The numbers and percentages from which the figures are drawn are contained in a set

¹ The Survey of Earned Doctorates collects information on *research* doctorates only. This survey differs from the U.S. Department of Education’s collection of the number of doctorate degrees awarded per institution for all fields. For an evaluation of the differences, see National Science Foundation, 1993, *Science and Engineering Doctorates 1960-1991*, NSF 93-301, Detailed Statistical Tables, pp. 2-6, Washington, DC.

² See appendix C for information on response rates for the SED.

of tables following the main text. A reference at the bottom of each figure indicates the corresponding table number. Basic tables of statistics for 1998 research doctorate recipients are shown in appendix A, and trend tabulations for the previous ten-year period (1988 to 1998) are presented in appendix B. Appendix C provides technical notes, including response rates, and other information related to tables and figures in the report. Appendix D is the SED questionnaire for the 1998 academic year.

Trends in Doctorate Recipients

Overall Numbers and Rates of Growth

During the 1998 academic year (July 1, 1997, through June 30, 1998), U.S. universities awarded a total of 42,683 research doctorate degrees,³ marking the thirteenth straight year in which the absolute number of doctorates increased. The annual growth rate from 1997 to 1998, 0.3 percent, was the same rate as for the preceding year.⁴ Over the past few years, the rate of increase has become markedly smaller than earlier in the decade. (See table 1.)

In absolute numbers, 42,683 represents an increase of 2,882 doctorates over the number for 1993 and is 9,183 more than in 1988.⁵ For the 10-year interval between 1988 and 1998, U.S. universities collectively awarded almost 400,000 doctorates (397,048), as compared to a total of 316,413 for the preceding 10-year period. U.S. institutions have awarded more than one million doctorates (1,174,442) over the last 40 years, of which 33.8 percent were granted within the last 10 years (figures 1 and 2).

The aggregate figure for 1998 is the largest number ever for any single academic year: an increase of 2,882 doctorates or 7.2 percent higher than 5 years ago and 9,183 or 27.4 percent more than 10 years ago. Only the 17-year interval between 1957 and 1974 was a longer period of consecutive annual growth. (See figures 1 and 2.)

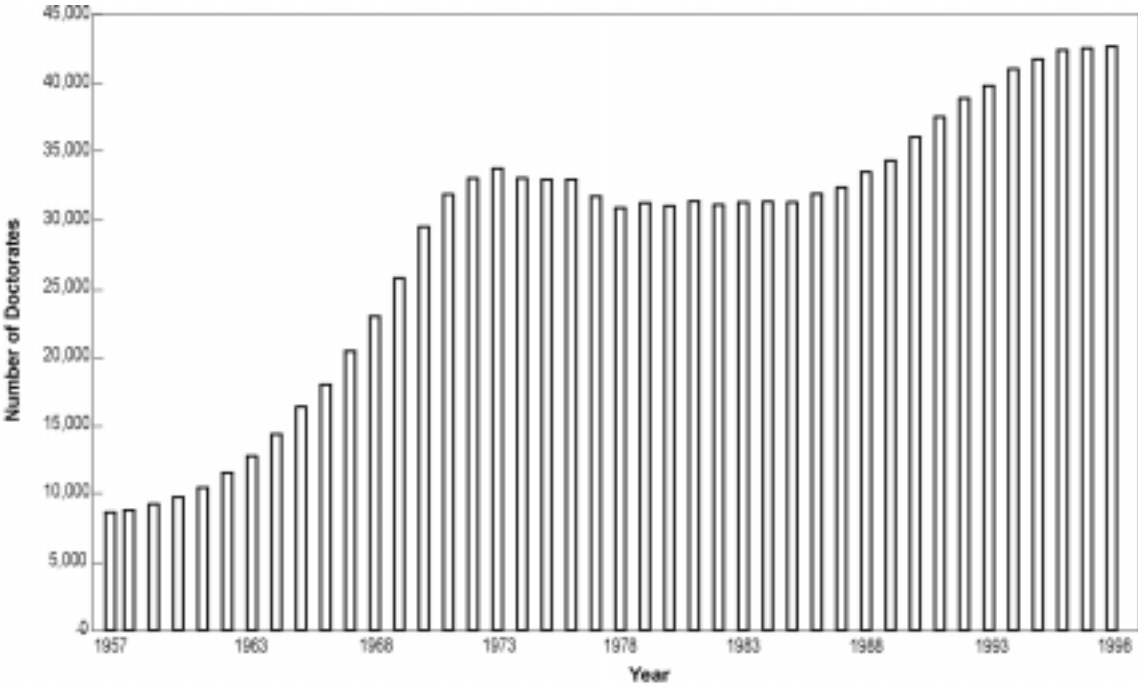
In general for the 1998 academic year, 58.2 percent of doctorate recipients were male, about two-thirds were U.S. citizens, and 62.7 percent were white. The typical recipient was slightly under 34 years of age at the time the degree was awarded. About three in ten recipients (29.2 percent) had never been married; 6.9 percent were either widowed, divorced, or separated; and 63.9 percent (66.0 percent for men and 60.9 percent for women) were currently married or

³ Doctorates are reported by academic year (from July 1 of one year through June 30 of the following year) and include *research* and *applied research doctorates* in all fields. Doctoral degrees such as the Ph.D., D.Sc., and Ed.D. are covered by this survey; professional degrees (e.g., M.D., D.D.S., J.D., Psy.D.) are not. A full list of included degrees can be found in appendix E. For convenience throughout this report, “Ph.D.” or “doctorate” are used to represent any of the doctoral degrees covered by the survey. Overall, 92.0 percent of all research doctorate degrees awarded in 1998 were Ph.D.s. The percentage of doctorates that are Ph.D.s differs by broad field of study (education, professional and “other” doctorates largely being not Ph.D.s, while traditional “arts and sciences” areas grant mostly Ph.D.s), and by factors associated with broad field of study, sex, racial/ethnic, and citizenship status, and institutional type.

⁴ In the initial data release and the *Summary Report 1997: Doctorate Recipients from United States Universities* (Chicago: National Opinion Research Center, 1999), the total number of doctorates for 1997 was given as 42,705. Subsequent review of the data files revealed that 150 of the degree recipients counted in 1997 actually received their doctorates in 1998. Thus, the revised 1997 total is 42,555, or 0.3 percent lower than for 1998; the revised growth rate between 1996 and 1997 was 0.3 percent.

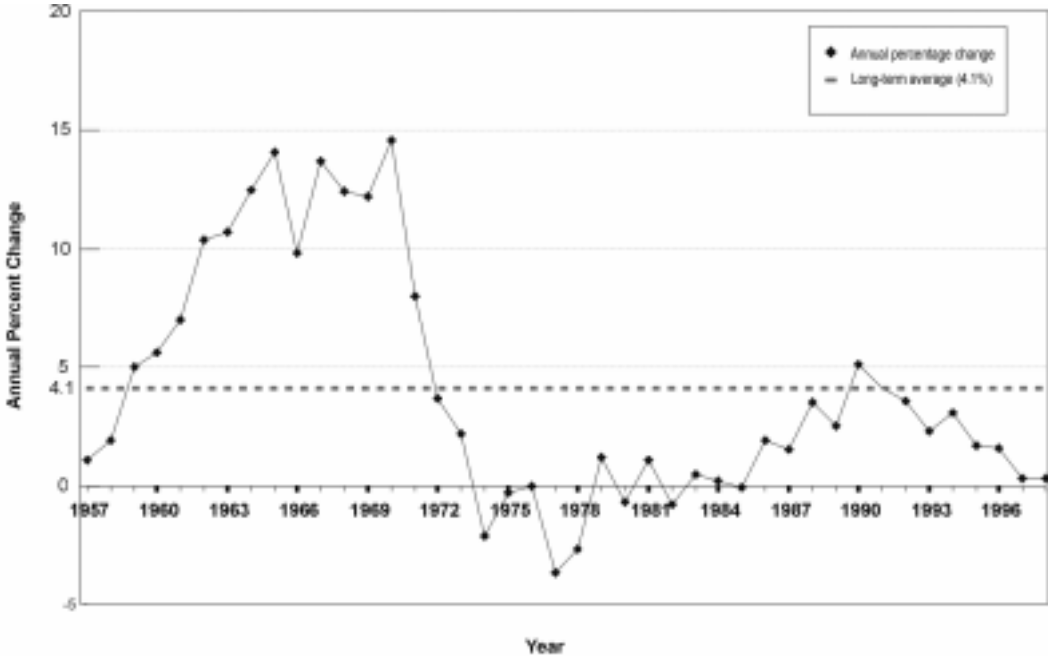
⁵ Source of data for 5-year comparisons (1993-98) in this report is the *Summary Report 1993: Doctorate Recipients from United States Universities*. National Research Council Washington, DC: National Academy Press, 1995. Source of data for 10-year comparisons (1988-98) is *Summary Report 1988: Doctorate Recipients from United States Universities*. National Research Council. Washington, DC: National Academy Press. 1989.

Figure 1. Doctorates awarded by U.S. colleges and universities, 1957-1998



See Table 1 Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 2. Annual percent change in doctorates awarded by U.S. colleges and universities, 1957-1998



See Table 1 Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

living in a marriage-like relationship.⁶ A decade ago the corresponding figures were higher percentages male, white, and U.S. citizenship; smaller percentage married; and the same approximate age at doctorate award. (See tables 7, 8, 11, A-3a and *Summary Report 1988*.⁷)

Doctorate-granting Institutions, Doctorates per Institution, and Geographical Distribution

During the 1998 academic year, 387 colleges and universities in the United States and Puerto Rico awarded at least one research doctorate, as compared with 382 institutions granting doctorates in the 1997 academic year. The number of institutions increased steadily from the early 1960s (174 in 1961) until 1988 but has remained relatively level for the last few years. (See table 2.)

The mean number of doctorates awarded per institution in 1998 was 110, and the median was 45. As the difference between mean and median suggests, a relatively small number of institutions grant a disproportionately large number of doctorates. For example, only 115 institutions awarded more than the mean in 1998, but these 115 institutions granted an average of 296 doctorates each, accounting for 79.8 percent of all Ph.D.s earned in that 12-month period. The remaining 272 institutions awarded 32 doctorates on average in 1998. In terms of quartiles, the top 18 institutions accounted for 25 percent of all doctorates, the second quartile contained the next 29, the third quartile included 52 universities, and the remaining 288 were in the fourth quartile.⁸

The University of Texas at Austin granted 834 doctorates, or just under 2 percent of all doctorates awarded—the most Ph.D.s of any U.S. institution. The University of Wisconsin-Madison (760) and the University of California-Berkeley (748) were second and third. These same three universities, in the same order, also were the top doctorate-degree producers in 1997. The University of Minnesota (Twin Cities), University of Illinois (Champaign-Urbana), Ohio State University, University of Michigan, and UCLA round out the list of the top eight doctorate producers in recent years. Generally, either Harvard or Stanford follows the top eight in granting the next largest number of doctorates, the most for a private institution. In 1998 the leading 10 universities awarded 16.2 percent of all doctorates. (See table 3 and appendix table A-7.) Ten years ago the largest number of doctorates was awarded by the University of California-Berkeley (758), and the top 10 institutions together granted 17.7 percent of the 33,456 doctorates awarded.

With respect to broad field, the University of California-Berkeley awarded the most doctorates (156) in the physical sciences. MIT granted the most engineering doctorates (229), while the University of Wisconsin-Madison led all universities in granting doctorates in the life sciences (185). Nova Southeastern University awarded the most doctorates in both the social sciences (149) and education (298). Nova also granted the largest number of degrees in the

⁶ Based only on the number with known status.

⁷ See note 5 above.

⁸ Calculations derived from appendix table A-7.

smaller, heterogeneous, “professional/other” category (58). The University of Texas-Austin was the leading granter of humanities doctorates (151). (See table 3 for the top 20 ranked institutions in each broad field.)

Doctorates granted by the top 10 institutions are concentrated in certain broad field areas. While these institutions accounted for 16.2 percent of all doctorates, they granted 19.1 percent of all Ph.D.s in the physical sciences, 27.7 percent in engineering, 18.1 percent in life sciences, 22.9 percent in humanities, and 21.0 percent in education. The lowest concentration was in the social sciences, in which the top 10 universities produced 15.4 percent of the doctorates.

For their doctoral studies, 68.4 percent of all new Ph.D.s attended public universities (for U.S. citizens that figure was 68.5 percent); 59.4 percent of the 1998 recipients who were U.S. citizens had earned their undergraduate degrees at public institutions.⁹

The 89 institutions in the Carnegie Research I classification¹⁰ awarded 67.6 percent of all doctorates in 1998; the 37 Research II universities granted 11.2 percent of all Ph.D.s. In 1998, 10.5 percent of new Ph.D.s received their degrees at Doctoral I institutions; for Doctoral II institutions, the figure was 4.8 percent. The set of “other” Carnegie institutions awarded 5.8 percent of all doctoral degrees in 1998. (See figure 3.)

California universities awarded 4,731 doctorates (11 percent of the total). New York institutions granted the next highest number of doctorates (3,784), followed by institutions in Texas (2,736), Illinois (2,260), and Pennsylvania (2,234). These five states accounted for 36.9 percent of all doctorates awarded in 1998. Appendix table A-7 shows the aggregate and subfield distribution of 1998 doctorates by individual institution and state. Ten years ago, the top five states (with Massachusetts in place of Pennsylvania) accounted for 39.9 percent of the 33,456 doctorates awarded that year.

Doctorates by Broad Field

The SED classifies research doctoral degrees into some 290 fields of specialization (these are listed on pp. 8 and 9 of the questionnaire included in appendix D). For presentation purposes here, these are grouped into seven broad fields: physical sciences,¹¹ engineering, life sciences,¹² social sciences (including psychology), humanities, education, and a heterogeneous group of professional and other fields. The latter includes mainly business-related and public administration doctorates; and communications research, law, social work, theology, and library science. Information about the levels and trends by these broad fields of study is of particular interest to Federal sponsors of doctoral research, academic administrators, and professional

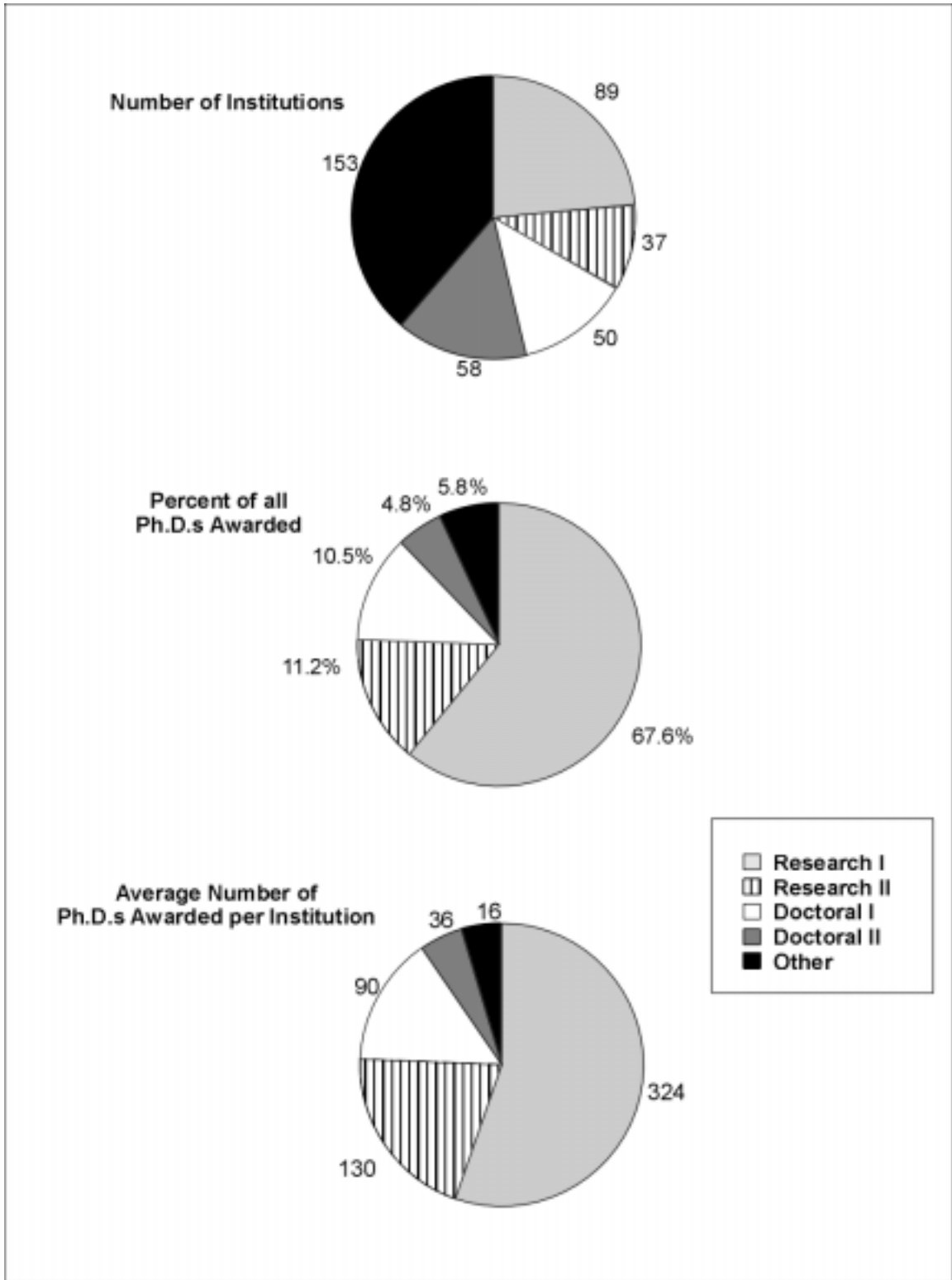
⁹ Public-private institution comparisons at the undergraduate level would be meaningless for non-U.S. citizens, who overwhelmingly enrolled in baccalaureate programs outside the United States.

¹⁰ See table 4 for a brief description of the Carnegie Foundation classification system and distributions.

¹¹ The physical sciences include mathematics and computer sciences, as well as the traditional physical sciences.

¹² The life sciences encompass biological, agricultural, and medical sciences.

Figure 3. Distribution of research-doctorate-granting institutions and doctorates by Carnegie classification, 1998



See Table 4: Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

associations, among others. These groups need such specialized data to make informed policy decisions influencing graduate education and the nation's labor force.

All seven broad fields show substantial gains in the number of doctorates for the 10-year interval of 1988–98. (See figures 4 and 5.) Although the overall rate of growth in Ph.D.s was 27.4 percent for that period, doctorates granted in the humanities field increased 54.7 percent (or 1,944 more doctorates), followed by engineering with a 41.4 percent increase (1,732) and the life sciences with a 38.5 percent increase (2,376). For the previous five-year interval (1993 -98), doctorates awarded in five of the broad fields increased but in education and the professional/other category, the number declined.

The four broad fields that together constitute “sciences and engineering (S&E)” — physical, life, and social sciences and engineering — showed a 1.9 percent annual increase in doctorates granted, an 8.2 percent gain over the past five years, and 31.9 percent more than were awarded in 1988. In 1998, these four fields yielded 66.2 percent of all Ph.D.s, a figure that has stayed fairly constant for the last four decades (it was 64.1 percent in 1968, 57.3 percent in 1978, and 64.0 percent in 1988).¹³

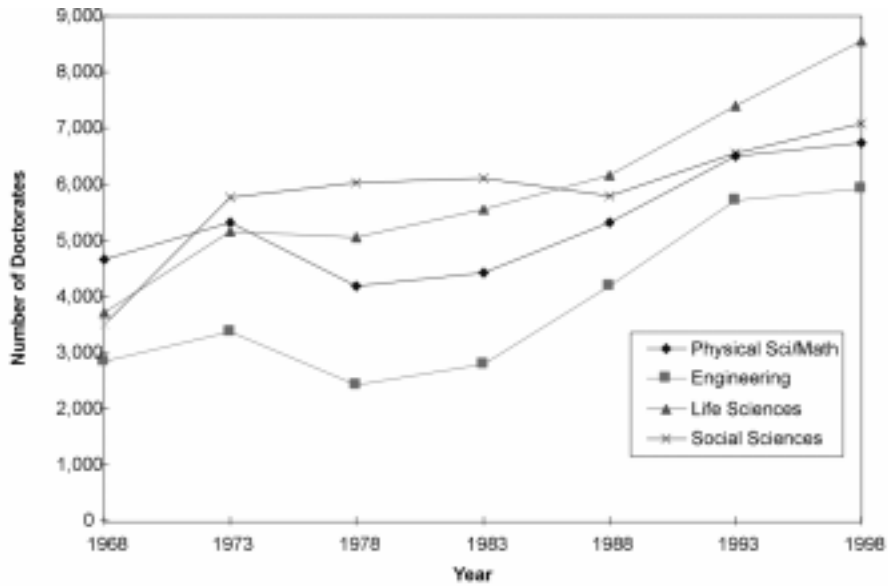
Thirty years ago, in 1968, more doctorates were awarded in physical sciences than in any other broad field, with education second. In 1978 and 1988, the largest number of doctorates were granted in education, with social sciences second in 1978 and life sciences second in 1988. For the 1998 academic year, life sciences was the broad field in which the most doctorates were awarded, followed by social sciences. (See figures 4, 5, and 6.)

In terms of groupings familiar to some graduate school deans—whose purview as academic administrators may not extend to engineering, education, and professional programs—65.3 percent of the 42,683 doctorates awarded in 1998 were in the “arts and sciences,” a figure that has hovered around 65 percent for the last 40 years. Between 1997 and 1998, the physical and life sciences showed a 3.3 percent increase, compared with a 2.2 percent gain for the humanities and social sciences. Over 5- and 10-year intervals, the physical and life sciences showed gains of 10.0 percent and 33.2 percent versus 14.0 percent and 34.7 percent for the humanities and social sciences.

The absolute numbers and comparable percentage changes over the last decade for 25 selected subfields are given in table 6. In all instances the number of doctorates grew, although the amount of growth in these individual academic areas varied widely: from lows of 1.9 percent in the agricultural sciences and 9.9 percent in chemistry to a more than doubling in the neurosciences (155.9 percent) and molecular biology (104.7 percent). Within all four of the major engineering subfields—chemical, civil, electrical, and mechanical—the number of doctorates awarded also increased. Chemical engineering had the smallest percentage increase

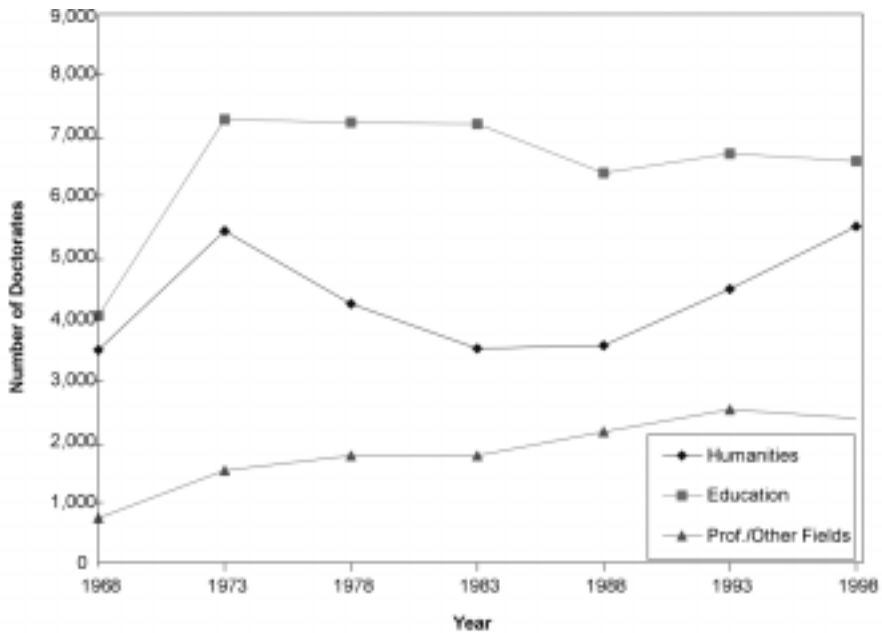
¹³ Source of data for 20-year comparisons (1978-98) in this report is the *Summary Report 1978: Doctorate Recipients from United States Universities*. National Research Council Washington, DC: National Academy Press, 1979. Source of data for 30-year comparisons (1968-98) is *Summary Report 1968: Doctorate Recipients from United States Universities*. National Research Council., Office of Scientific Personnel. Washington, DC: National Academy of Sciences, 1969.

Figure 4. Science and engineering doctorates awarded by broad field, 1968-1998



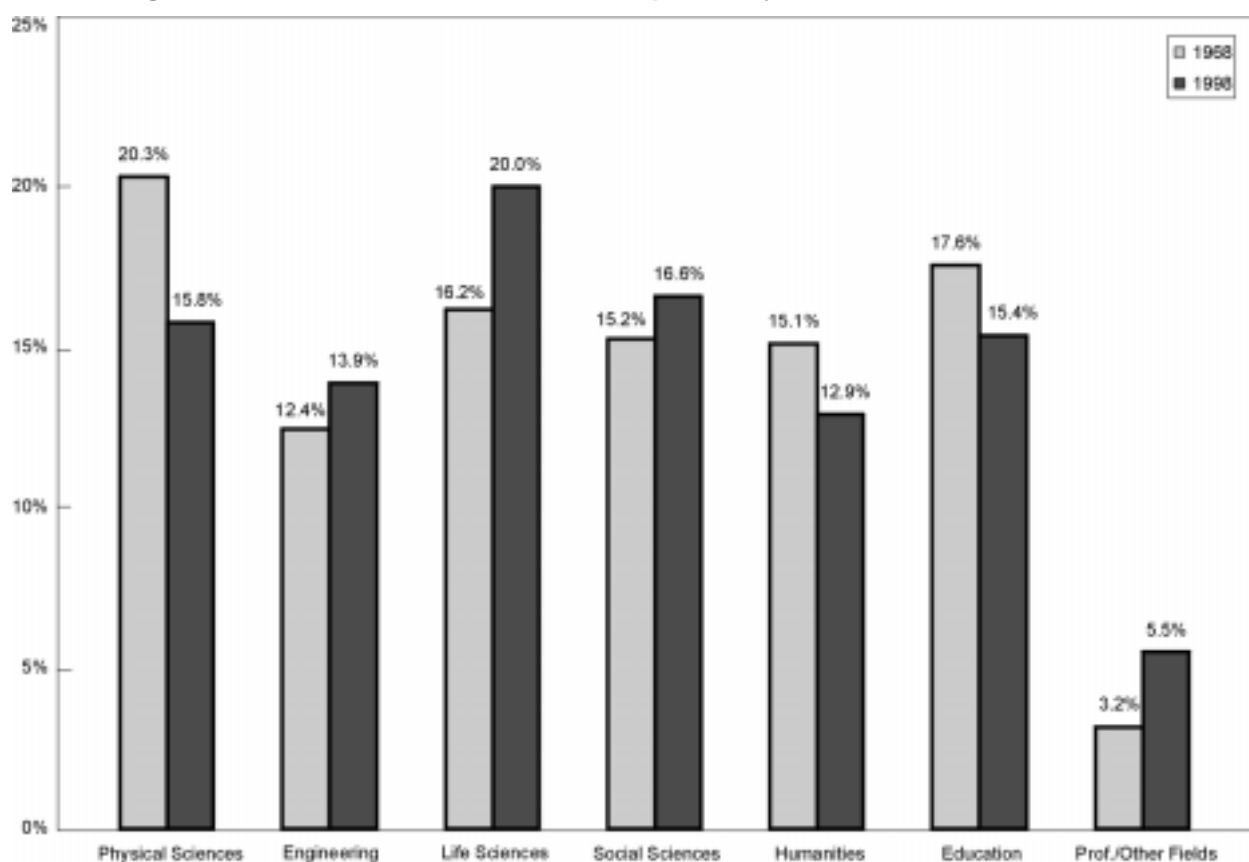
See Table 5. Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 5. Humanities, education, and professional/other doctorates awarded by broad field, 1968-1998



See Table 5. Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 6. Distribution of doctorate recipients by broad field, 1968 and 1998



See Table 5

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

(6.7 percent) and electrical and mechanical engineering showed the largest gain (51.8 percent and 53.2 percent).

Doctorates by Sex

The aggregate percentage increase in doctorates earned between 1997 and 1998 (0.3 percent) is decidedly different when comparison is made by sex. In 1998, women received 17,856 Ph.D.s, the highest one-year total ever and a 1.4 percent gain over 1997. (See figure 7.) Females received 41.8 percent of all doctorate degrees granted, again the highest percentage ever; 1998 was the third consecutive year in which the representation of women was at least 40 percent. The absolute number of males earning doctorates declined for the second straight year—the 1998 total of 24,653 is 787 less than for 1996—and 1998 was the ninth consecutive year in which the overall male percentage declined. Over the last 40 years, from 1958 (when only 911 doctorates were awarded to women) to 1998, the rate of growth for male doctorates has

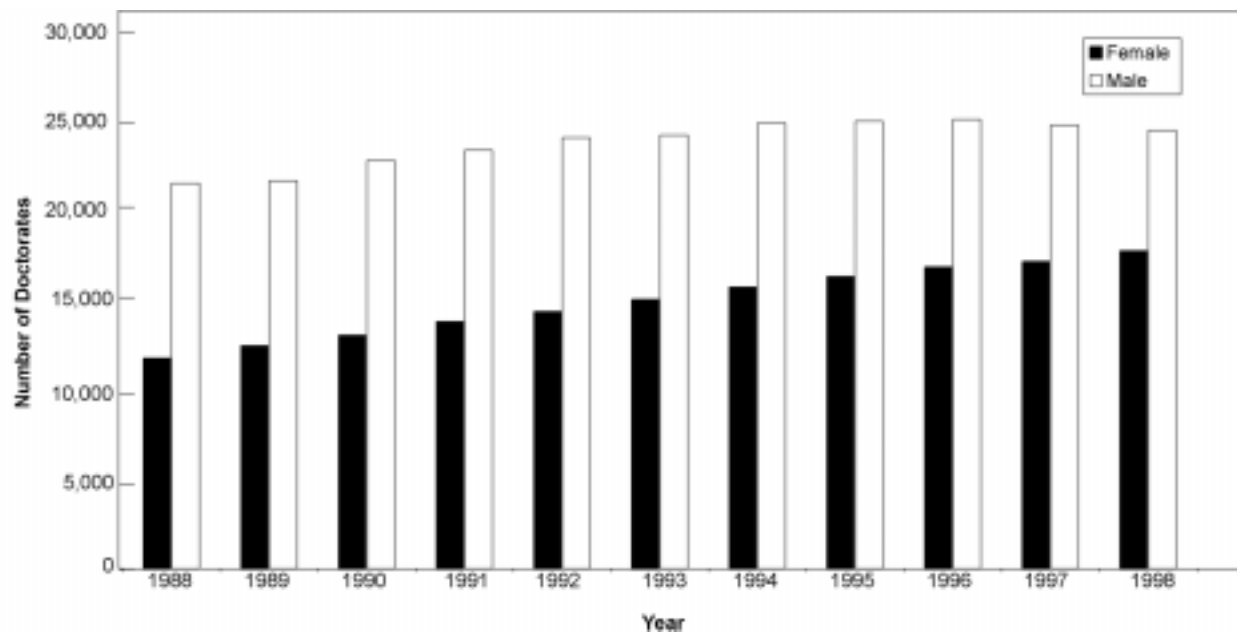
averaged just under 3 percent annually; over that same interval the rate of growth for female doctorates has been 7.5 percent per year.

The same long-term trend of increased female representation holds true for U.S. citizens, permanent residents, and those in this country on temporary visas. Absolute numbers of doctorates earned by females in all three categories increased between 1997 and 1998, while the numbers fell for males in the corresponding categories. Among U.S. citizens, the total number of doctorates earned by men and women in 1998 is very close to population parity: 47.7 percent of all doctorates were awarded to women. Ten years ago the female U.S.-citizen proportion of doctorate recipients was 41.1 percent, and 20 years ago it was only 29.1 percent.

Over that same 20-year time frame, female permanent resident recipients increased steadily from 21.7 percent in 1978 to 38.0 percent in 1998. Of doctorate recipients holding temporary visas, only 25.6 percent in 1998 were women. In 1988 females holding temporary visas constituted only 17.1 percent of doctorate recipients, compared with 13.3 percent 20 years ago. (See figure 7 and appendix tables B-2b and B-2c.)

The increase in absolute numbers and in percentage terms for women occurred in virtually every broad field. In the physical sciences, the area with the second smallest representation of women (the fewest women are in engineering), female doctorate recipients increased by 11.0 percent. Men showed percentage increases in four of the seven broad fields, although only in education was the male increase greater than the increase for females.

Figure 7. Doctorate recipients by sex, 1988-1998

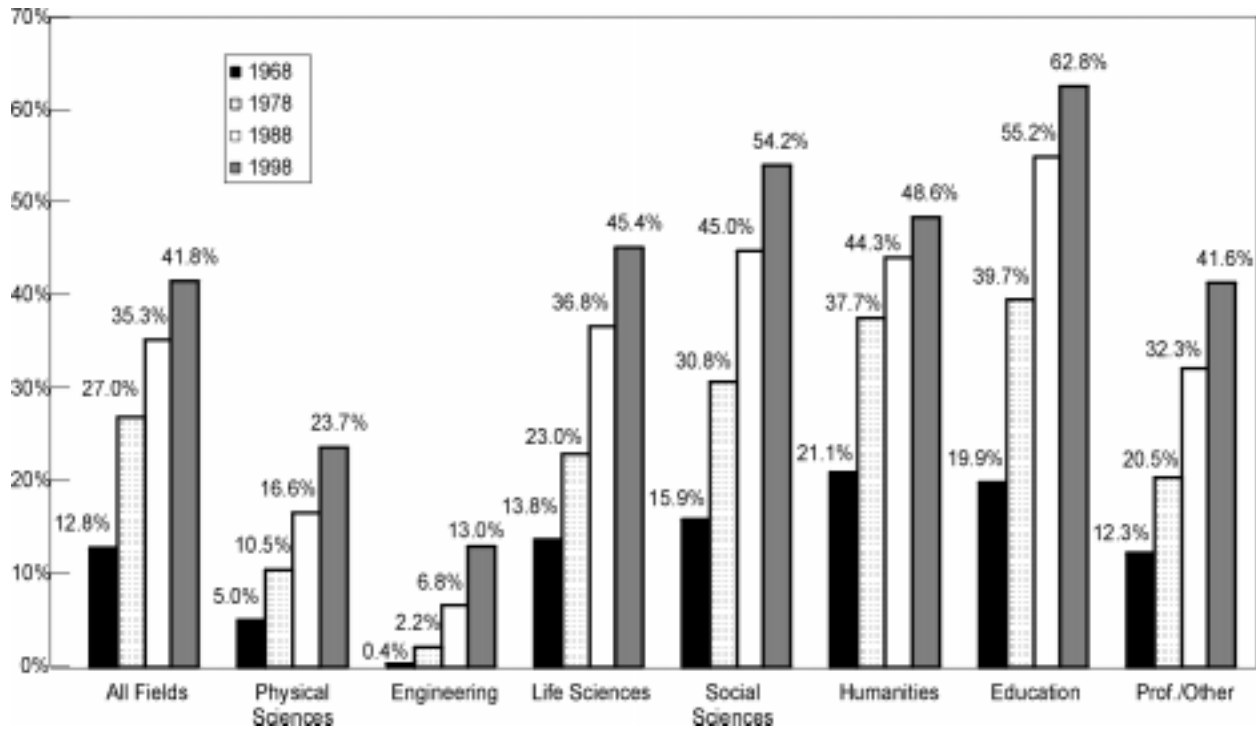


See Table 6

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

In spite of both recent gains and the longer term trend, the distribution of doctorates by sex across the major fields remains decidedly bi-modal. In 1998, women received just 18.8 percent of all doctorates in physical sciences and engineering combined; across the other five fields they were, on average, in the majority—51.7 percent for all five combined. (See figure 8.)

Figure 8. Female doctorate recipients by broad field, 1968, 1978, 1988, 1998



See Table 7

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Within the subfields, representation by sex varies widely. (See table 6.) For example, in the physical sciences field, women received 31.3 percent of chemistry doctorates in 1998 but only 17.0 percent in computer sciences; in the life sciences, females earned 67.1 percent of all Ph.D.s in the health sciences (and 96.4 percent in nursing alone) but only 39.0 percent in ecology; within the major social science disciplines, the proportion of female doctorate recipients ranged from 27.4 percent in economics to 66.9 percent in psychology; and in the humanities, women received 75.0 percent of all art history doctorates compared with 29.4 percent in philosophy. (See table 6 and appendix table A-1 for additional subfield distributions by sex.)

Doctorates by Race/Ethnicity

For U.S. citizens the aggregate number of minority doctorate recipients rose between 1997 and 1998, from 3,845 to 4,014 (or by 4.4 percent).¹⁴ This number is 35.8 percent higher than 5 years ago, 89.3 percent higher than 10 years ago, and more than double the 1978 figure (104.1 percent higher). If both U.S.-citizen and permanent-resident minority recipients are counted, the increases are 32.3 percent higher than 5 years ago, 94.1 percent higher than 10 years ago, and 111.2 percent higher than in 1978. These sizable increases are even more impressive when compared to the growth of doctorates earned by white U.S. citizens over the same period: Minority U.S. citizens received 2,047 more doctorates in 1998 than in 1978, while white U.S. citizens earned only 1,527 more. (See figures 9 and 10.)

While the overall rate of increase in doctorates between 1997 and 1998 was 0.3 percent, the number of doctorates decreased by 2.2 percent for U.S. citizens and permanent residents who were members of a racial or ethnic minority. However, that aggregate decline is misleading, as the percentage increased sizably for American Indians (13.9 percent), blacks (7.5 percent), and Hispanics (10.8 percent). The observed decline is due to a decrease in doctorates earned by Asian U.S. citizens (9.9 percent) and the even more pronounced decrease for permanent-resident Asians (14.4 percent).¹⁵ (See appendix tables A-2 and B-2a as well as figure 9.)

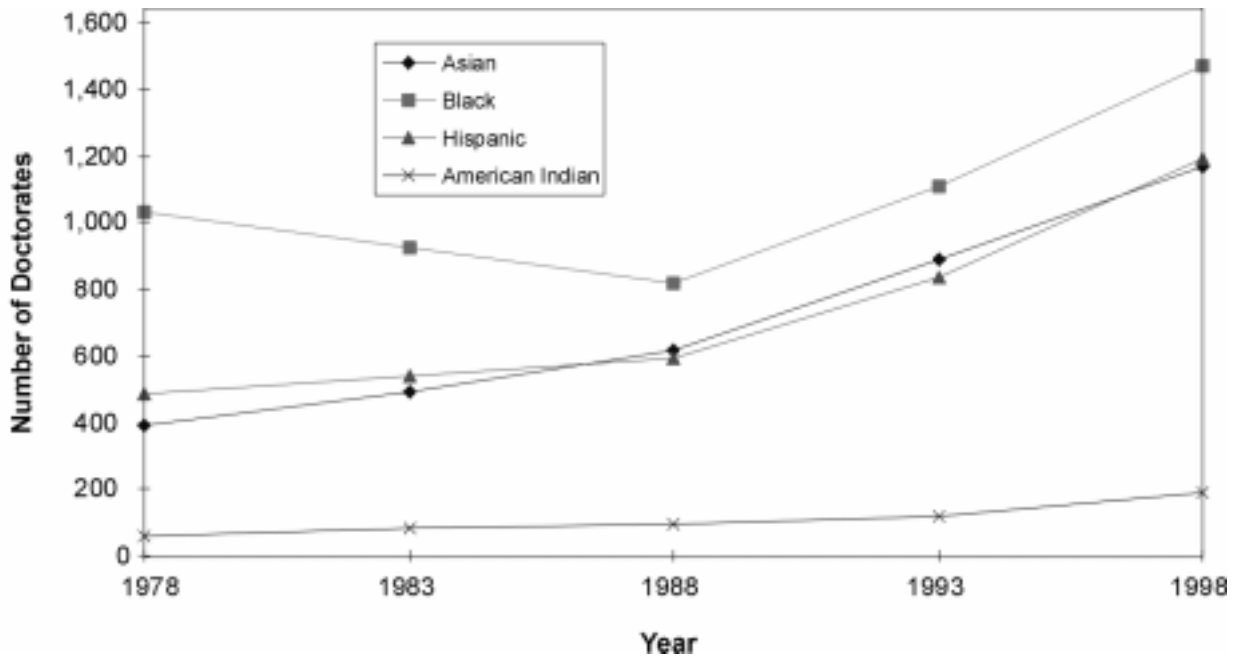
Minority women earned 52.3 percent of Ph.D.s granted in 1998 to minority U.S. citizens. In three of the four groupings, female U.S. citizens earned slightly more than 50 percent of doctorates awarded to minorities—55.0 percent for American Indian women, 55.1 percent for Asian women, and 50.9 percent for Hispanic women. Black women, however, earned 64.6 percent of doctorates awarded to blacks. (See figure 11.)

Overall in 1998, 42.9 percent of doctorates awarded to U.S. citizens and permanent residents were granted in the three broad fields of physical sciences, engineering, and life sciences. However, 69.8 percent of Asians receiving doctorates earned them in those three fields, as did more than 75 percent of non-U.S. citizens on temporary visas, the majority of whom are from Asian nations. By contrast, blacks accounted for only 23.2 percent of the doctorates awarded in these three fields. One broad field—education—accounted for 40.7 percent of doctorates received by blacks. More American Indians also earned doctorates in education (26.5 percent) than in any other field. The social sciences were the most popular field for Hispanics—23.8 percent of all doctorates awarded to Hispanics were in the social sciences. (See figure 12.)

¹⁴ The SED questionnaire asks respondents to classify themselves as Hispanic, American Indian or Alaskan Native, Asian or Pacific Islander, black, or white. In this report, references to Asians include Pacific Islanders, and references to American Indians include Alaskan Natives.

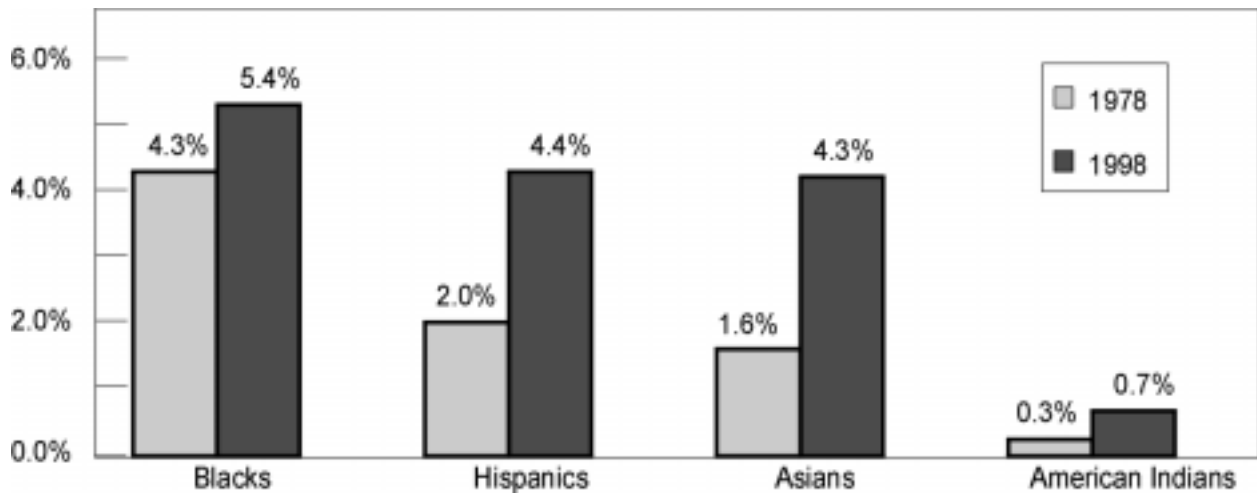
¹⁵ More than 90 percent of blacks, Hispanics, and American Indians who earned doctorates are U.S. citizens, but only 42.9 percent of Asian doctorate recipients are U.S. citizens—the majority (57.1 percent) are permanent residents. Thus, when tracking race/ethnicity trends, one must distinguish between U.S. citizens and permanent residents.

Figure 9. Doctorates awarded to minority U.S. citizens by race/ethnicity, 1978-1998



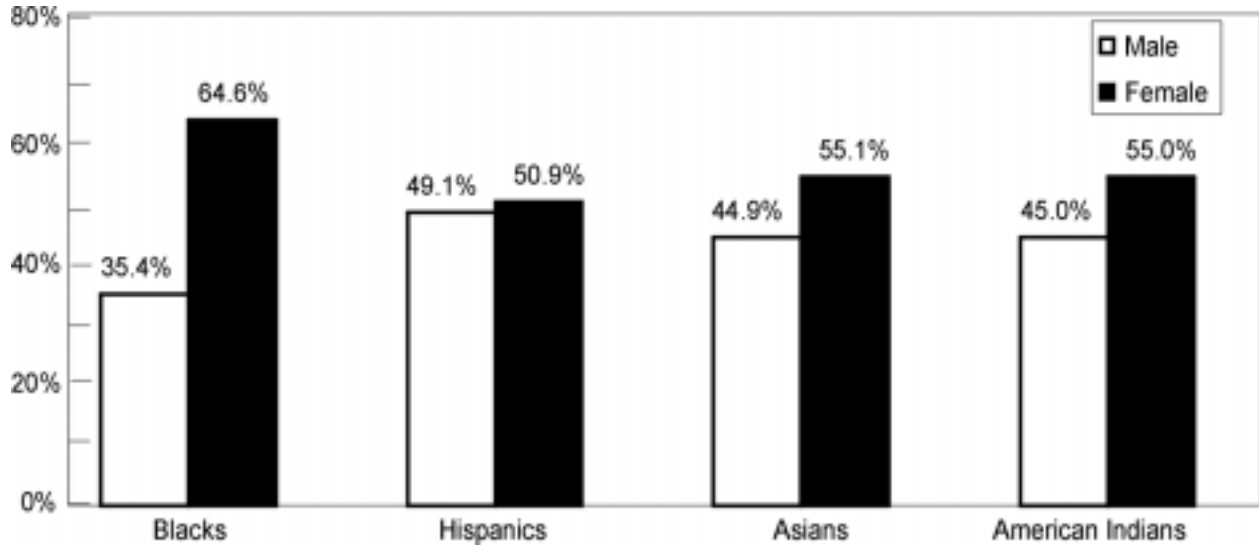
See Table 8 Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 10. Percentages of doctorates earned by minority U.S. citizens, 1978 and 1998



See Table 8 Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

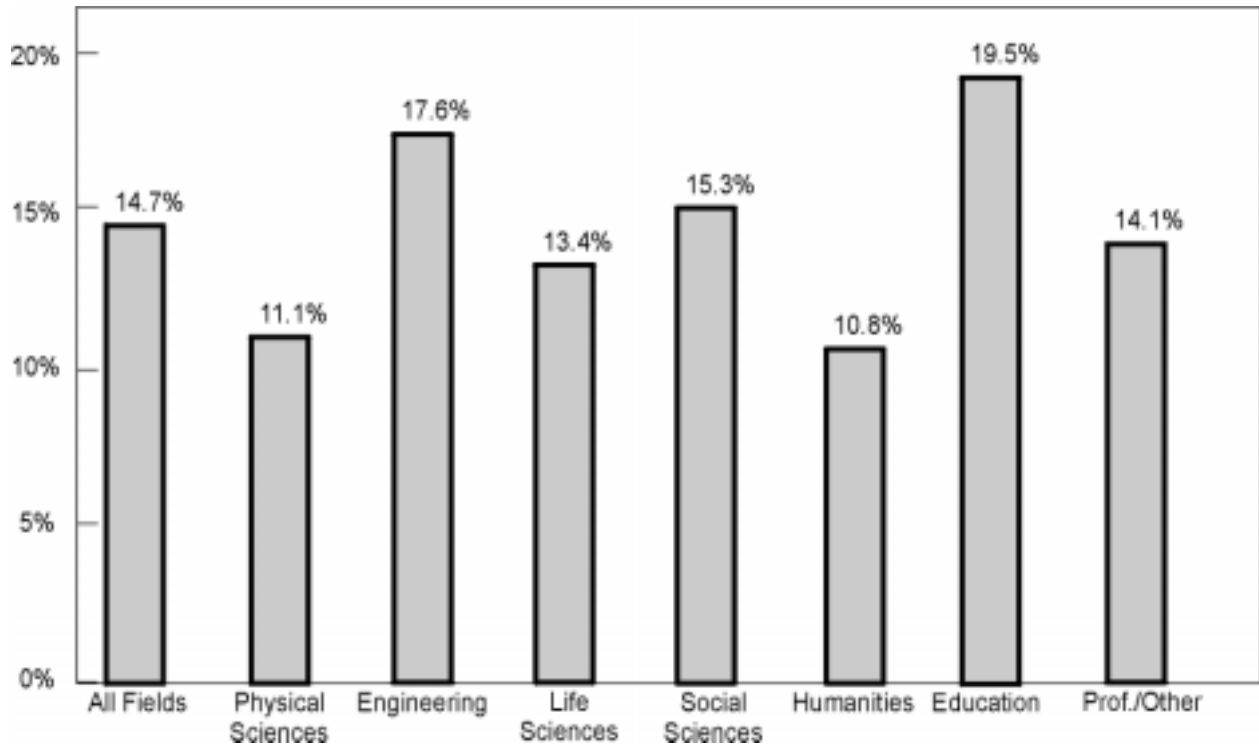
Figure 11. Distribution of doctorates earned by minority U.S. citizens by sex, 1998



Appendix Tables B-2b and B-2c

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 12. Doctorates earned by minorities U.S. citizens by broad field, 1998



See Table 9

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Among U.S. citizens, Asian doctorate recipients increased between 1997 and 1998 only in the humanities; they declined in the other six broad field areas. Blacks showed increases in the physical sciences, social sciences, humanities, and education. The number of Hispanics receiving doctorates was larger in 1998 relative to 1997 in all four S&E fields and in education. The numbers for American Indians, while small, increased in all seven fields. By contrast, for white U.S. citizens, the total number of doctorates awarded between 1997 and 1998 increased in three fields—physical sciences, social sciences, and the humanities—and fell in the other four.

Table 10 lists the universities that awarded the most doctorates to each of the four minority groups over the last five years and the absolute number awarded. Three California institutions and two in Boston—Berkeley, UCLA, Stanford, Harvard, and MIT—granted the most Ph.D.s (18 percent) to Asian U.S. citizens over the 1993-98 time period. Nova Southeastern and Howard together granted 7.6 percent of all doctorates awarded to blacks in the last five years. Hispanics earned more doctorates at the University of Texas-Austin than at any other institution over this period. Ten universities—two in Texas, three in California, two in Puerto Rico, two in Arizona, and Harvard—awarded almost one-fourth (23 percent) of all doctorates to Hispanics. Oklahoma and Oklahoma State Universities led all institutions in the number of doctorates awarded to American Indians.

The concentration of doctorates earned by U.S. minority students from these particular institutions is much higher than the concentration by entire population, citizenship, or broad field. Although the overall top 10 institutions awarded 16.2 percent of all doctorates (see appendix table A-7), the top 10 institutions in each racial/ethnic category accounted for 28.5 percent of Asian doctorate recipients, 41.0 percent of black recipients, 21.0 percent of Hispanic recipients, and 20.4 percent of American Indian recipients. (See table 10.)

Doctorates by Citizenship

Approximately one-fifth of all doctorates granted in 1998 were awarded to non-U.S. citizens in this country on temporary visas. In absolute numbers, this group earned 8,642 doctorates. (See appendix table A-4.) However, of the 42,683 total doctorates awarded, citizenship is unknown in 3,127 cases. Consequently, the 8,642 figure is 20.2 percent of all doctorates and 21.8 percent of doctorate recipients whose citizenship is known.

If all of the “unknowns” were on temporary visas, which is highly unlikely, the percentage would rise to 27.6 percent. These three percentages bound the true representation of international students earning doctorates at U.S. institutions. The corresponding percentages were similar in 1997: 19.9 percent of all doctorate recipients, 21.6 percent of recipients of known citizenship status, and 27.5 percent of all recipients assuming all unknowns were on temporary visas. Ten years ago, these percentages were 18.5 percent, 19.9 percent, and 25.6 percent.

The trend over the last decade is consistent—the percentage of non-U.S. citizens earning doctorates from U.S. universities has inched up modestly. By contrast, in the decade before (1978-88), the increase in international doctoral students was much larger. For 1978 those same percentage bounds ranged from 11.1 percent to 13.7 percent, or about half of the 1998 figures.

Stated another way, while the number of U.S. citizens receiving doctorates in 1998 was approximately 3,000 higher than the corresponding total in 1978, the number of doctorates awarded to students on temporary visas in 1998 was more than 5,000 higher than 20 years earlier. (See table 11.)

Permanent U.S. residents (that is, non-U.S. citizens on permanent visas, or holding a “green card”) have also increased in absolute and relative terms among the doctorate population. In 1978 they represented 4.5 percent of all doctorate recipients with known citizenship; in 1988 that percentage was 5.2 percent, and in 1998 it was 6.8 percent.

Although temporary visa holders were 21.8 percent of doctorate recipients whose citizenship was known, their percentages by broad field varied considerably. For example, these non-U.S. citizens earned 44.2 percent of all engineering doctorates, 32.6 percent of the physical sciences doctorates, and 24.4 percent of the life sciences doctorates. (See table 11 and appendix table A-2.) For the S&E fields as a whole, non-U.S. citizens made up 27.9 percent of the doctorate population. Viewed from a different perspective, the numbers indicate that 27.7 percent of all doctorate recipients on temporary visas earned their degrees in engineering, followed by 23.6 percent earning doctorates in the physical sciences and 22.5 percent in life sciences; 84.4 percent of all doctorates granted to non-U.S. citizens on temporary visas were earned in S&E fields.

The People’s Republic of China continues to outdistance other nations as the country of origin for non-U.S.-citizen doctorate recipients. Fully 6 percent, or 2,571, of all doctorate recipients in 1998 were citizens of China. India was second (with 1,259, or just under 3 percent), followed by Taiwan, Korea, and Canada. Fifteen percent of all doctorate recipients were citizens of these five countries, and they constituted more than 50 percent of all non-U.S. citizens receiving doctorates. The top 30 countries of origin of doctorate recipients who were non-U.S. citizens on temporary visas in 1998 are listed in table 12.

Table 13 lists the institutions awarding the largest number of doctorates to non-U.S. citizens, with the University of Texas-Austin granting the highest number (249). In percentage terms—that is, relative to the total number of doctorates awarded—the New Jersey Institute of Technology leads all institutions. (See table 14.)

Doctorates by Parental Education Background

In addition to the distribution of doctorate recipients by sex, race/ethnicity, and citizenship, the SED categorizes new Ph.D. recipients by family and personal background: geographic origins (see a discussion of this topic in the section on postgraduate plans), marital status and dependents, disability status, and the level of educational attainment by recipients’ parents. Only the last is discussed in this section.

In 1998, of doctorate recipients as a whole, 28.3 percent came from families in which the father had a high school education or less; for 37.1 percent of recipients, the mother had a high school education or less. More than 40 percent (40.3) of the fathers of doctorate recipients had an

advanced degree,¹⁶ compared with 27.9 percent of the mothers. In 23.4 percent of the households, both parents held advanced degrees, but in a comparable number of families—23.0 percent—both the father and mother had high school education or less. (These percentages and all of the discussions that follow are based on data from table 15.)

These distributions vary widely by citizenship. For example, the percentage of doctorate recipients who had fathers and/or mothers with a high school education or less is lowest for U.S. citizens and highest for students holding temporary visas. As might be expected, the opposite is true for families in which parents held advanced degrees—U.S. citizen students had the highest percentage of parents holding advanced degrees and students studying on temporary visas had the lowest percentage.

Comparing by race/ethnicity, white doctorate recipients had the lowest percentages of fathers (27.0 percent) and mothers (34.3 percent) with a high school education. Black doctorate recipients had the highest percentage of fathers with a high school diploma or less (53.1 percent). Hispanics (52.6 percent) and blacks (51.9 percent) showed the highest percentages of mothers with a high school diploma or less.

Male and female doctorate recipients come from families in which the parents had similar educational backgrounds. For the families of male doctorate recipients, 29.0 percent of the fathers had a high school education or less, whereas 39.4 percent of the fathers held advanced degrees. For female Ph.D.s, those percentages are 27.5 percent having fathers with a high school education or less and 40.9 percent of fathers holding advanced degrees. Slightly more of the mothers of female doctorate recipients, as compared to mothers of male Ph.D.s, held advanced degrees (28.9 percent versus 26.7 percent) and fewer of the mothers had high school education or less (34.5 percent versus 39.2 percent).

The educational attainment of parents differs among students in the various broad fields. Doctoral recipients in the humanities and social sciences had the highest percentage of fathers with advanced degrees (46.5 percent and 45.7 percent), while doctorate recipients in the field of education had the lowest percentage of fathers with advanced degrees (29.1 percent). The distributions rank in the same order for mothers of recent Ph.D.s.

Time to Degree

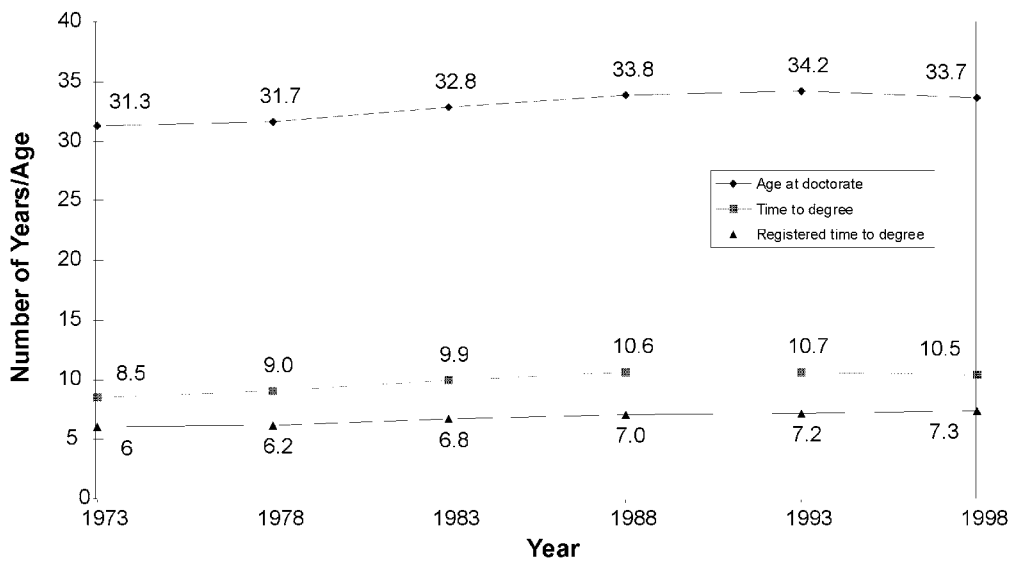
The median 1998 doctorate recipient graduated from high school in 1980, at age 18, was about 34 (33.7) years of age when receiving his or her doctoral degree, and had been enrolled on a full-time basis for 6 years in the doctoral program. Women were, on average, about 18 months older than their male counterparts (34.8 years of age versus 33.1 years for males). While two-thirds (67.9 percent) of recent Ph.D.s received their high school diploma at 18 years of age, 3.8 percent were 16 years old or younger, and 2.4 percent were at least 20 years old.

The amount of time taken by doctoral students to earn their degrees can be expressed in several ways. The survey collects data on three statistics in particular: (1) the elapsed time

¹⁶ Advanced degree is defined as a master's degree, professional degree, or doctorate.

between receipt of the baccalaureate and conferring of the doctorate; (2) the number of years actually registered in a doctoral program; and (3) the age at which the doctorate was awarded. None of these “clock times” is necessarily an accurate measure of the time and effort required to complete a doctorate, for each measure can be affected by such factors as the job markets for new doctorates, child care responsibilities, or requirements governing access to loans (and the repayment schedule) and health insurance through the university. Nevertheless, taken together, these three offer a complementary picture of the path and process of doctoral study. (Tables 16, 17, and 18 and figures 13 and 14 provide the data and graphical illustrations for the discussion on time to degree below, both for 1998 levels and longitudinal comparisons.)

Figure 13. Median number of years to doctorate from baccalaureate award and age at doctorate, 1973-1998

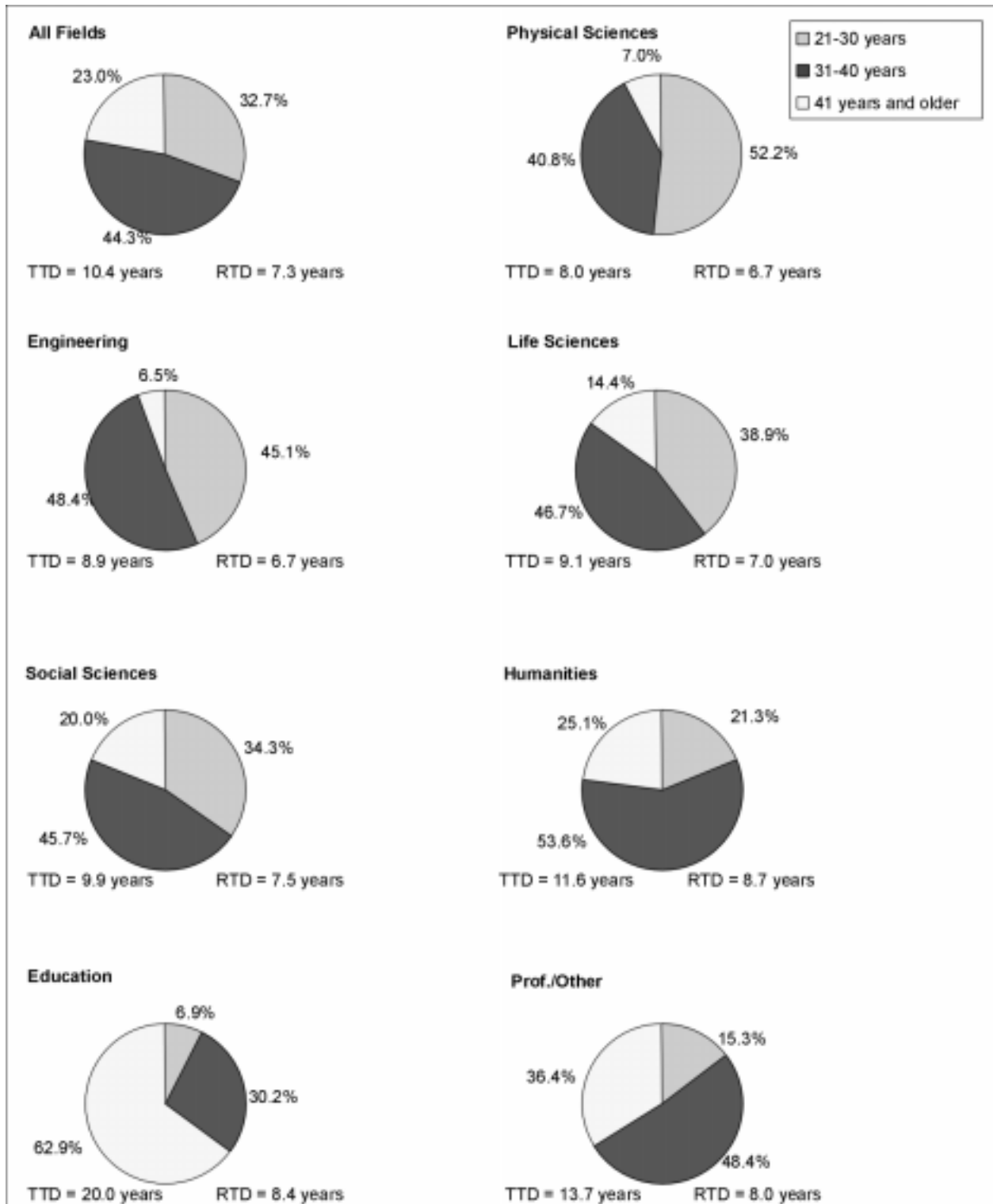


See Table 16

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Doctorate recipients in the physical sciences had the shortest total time to degree (8.0 years) for students in any of the seven broad fields of study, with engineering Ph.D.s second (8.9 years); both fields had the lowest registered time (6.7 years). Within the general arts and sciences areas, humanities students took the longest median time to earn their doctorates (11.6 years), and they were registered for the longest period as well (8.7 years). Overall, education doctorate recipients had the longest average time to degree (20.0 years), although they were actually registered in their doctoral program for less than half of that time (8.4 years). (See figures 13 and 14.)

Figure 14. Age distribution at doctorate by broad field of study



See Table 18

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

For 1998 doctoral recipients, the median number of years from the baccalaureate to the Ph.D. was 10.4 years (compared with 10.5 years for the 1997 doctoral cohort and 10.8 years in 1996). The registered time to degree was 7.3 years; it was also 7.3 years in 1997 and was 7.2 years in 1996. Because males and females, U.S. citizens and non-citizens, and members of various ethnic/racial groups are not distributed in the same proportions across academic disciplines, total and registered times can vary by sex, race/ethnicity and citizenship.

For example, males are more likely to be in the physical sciences, engineering, and life sciences, where both total and registered times to degree are lower than in other areas; females are overrepresented in the social sciences, humanities, and education, where both time-to-degree medians are higher. The aggregate difference in total time to degree (9.9 years for males versus 11.3 years for females) or registered time to degree (7.2 years for men versus 7.6 years for women) is largely attributed to the distributions by sex across these fields of study; within a specific field, median times are higher for women in some areas and lower in others.

Distributions by actual age at receipt of the doctorate are consistent with the other two time-to-degree measures. For the physical sciences, engineering, and life sciences, the modal age grouping is 26-30 years of age; for the social sciences and humanities, it is 31-35 years; and for education, it is the open-ended “over 45 years” category. (See table 18 and figure 14.)

Overall, non-U.S. citizens holding temporary visas have shorter total and registered times to degree (9.5 years and 7.0 years) than do U.S. citizens or permanent residents. (See table 17.) Again, this is a function of the distributions by citizenship status across the various fields. Because of their disproportionate representation in the S&E fields, non-U.S. citizens holding temporary visas on average complete their degrees when they are about two years younger than U.S. citizens. However, for each individual S&E category, total time to degree is shorter for U.S. citizens than for those on temporary visas; that pattern generally (but not universally) holds true for registered times as well.

Within the U.S citizen category, Asians have the shortest and blacks the longest total and registered times, but there are no systematic differences within field by race/ethnicity.

Financial Resources in Support of Doctoral Recipients

Nearly one-third (32.2 percent) of 1998 doctorate recipients reported that their “own resources” was the primary source of financial support for their doctoral programs. These resources include loans; personal savings; non-academic personal earnings during graduate school; and earnings or savings from spouse, significant other, or family. More than half (60.6 percent) reported their primary financial support as a program- or institution-based source: fellowship or dissertation grant (16.3 percent), teaching assistantship (17.8 percent), and research assistantship/traineeship (26.5 percent). Those reporting foreign government (2.5 percent), employer (3.1 percent), and other sources (1.6 percent) make up the remainder. (See figure 15.)

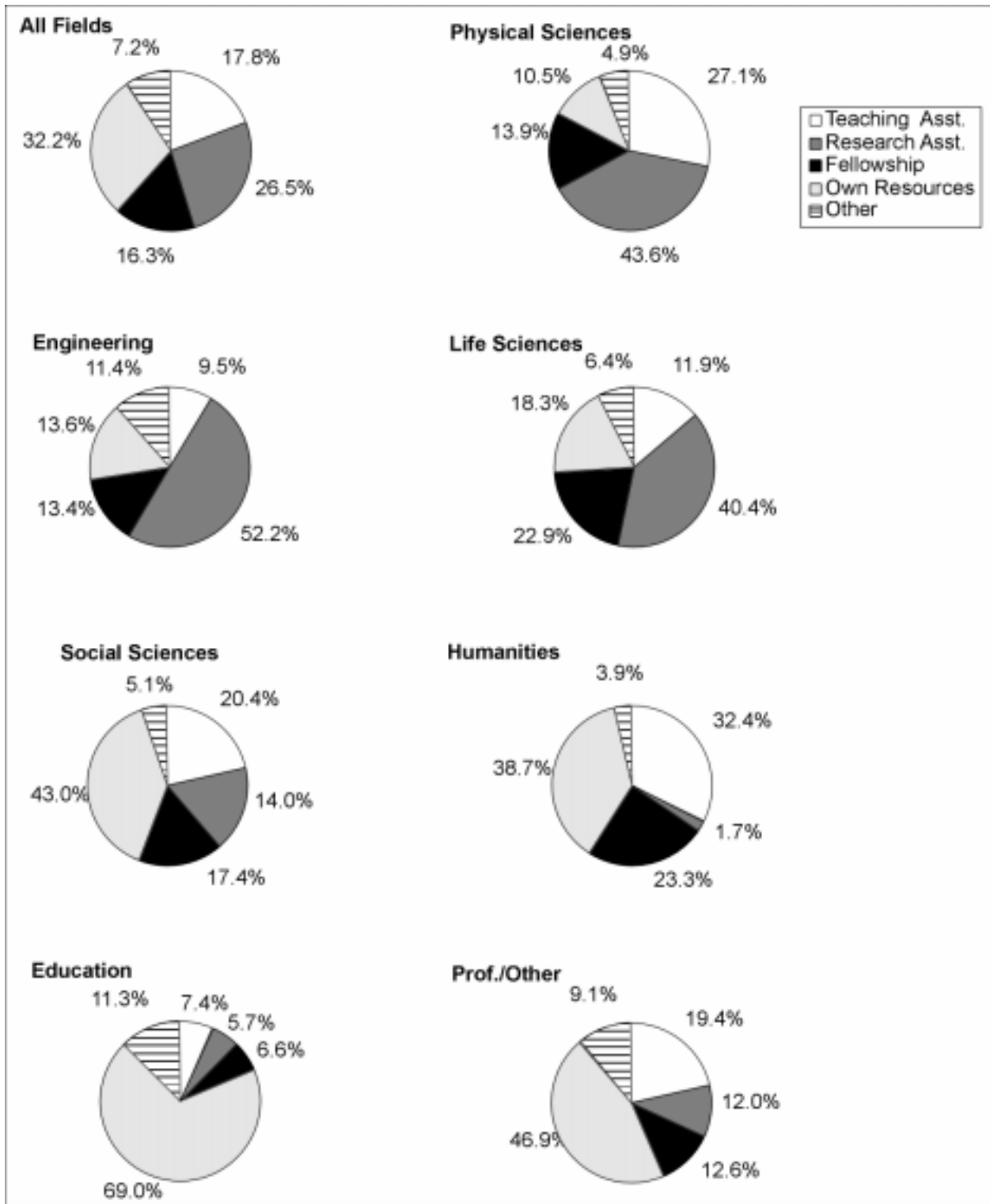
Overall, a higher percentage of women than men reported “own resources” as their primary financial source (41.1 percent versus 25.8 percent). U.S.-citizens (40.1 percent) were more likely than permanent residents (20.2 percent) or those on temporary visas (11.3 percent) to primarily rely on personal resources. Among the racial/ethnic groups (including whites) of U.S. citizens, the percentages citing personal resources as their primary support fell in a narrow band between 40 and 46 percent, except for Asians, for whom the percentage was 24.2 percent. However, the observed distributions are largely a function of field of study and underlying public policies, so comparisons at this level of aggregation must be further clarified.

For example, within the physical sciences only 10.4 percent of men and 10.7 percent of women listed their own funds as their primary source of support; both sexes had access to teaching and research assistantships and fellowships in almost identical proportions. By contrast, in the social sciences almost half of the female doctorate recipients (47.9 percent) and 37.3 percent of their male counterparts listed personal resources as the primary financial source; in the humanities the percentages were 38.9 percent females and 38.5 percent males. At 69.0 percent, education led all broad fields in students’ own resources as the primary means of support.

International students are more heavily concentrated in fields where the majority of doctoral students traditionally receive institution- and/or program-based financial aid; consequently, it is not surprising that they rely less than do U.S. citizens on personal resources to support themselves in graduate school. However, within each of the seven broad fields, the percentage of U.S. citizens relying on their own financial resources exceeded that for their non-citizen counterparts, with permanent residents falling between in every instance. Three constraints influence the distribution of aid by citizenship status: (1) students on temporary visas are not eligible for many Federal or state sources of graduate assistance, such as USDA fellowships or traineeships from NIH and NSF; (2) international students, and in most cases their spouses, are not legally allowed to hold many forms of employment in the United States; and (3) non-U.S. citizens are excluded from most Federal loan programs.

These constraints are coupled with the requirement that approval of visa applications is assured only for international students who demonstrate full, guaranteed financial resources to

Figure 15. Primary sources of financial support for doctorate recipients, 1998



See Table 19

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

complete their studies in this country. Because these individuals are not allowed to draw from traditional sources of support (see above), universities provide more teaching and research assistantships and fellowships to their international students. Consequently, non-U.S. citizens are more likely to receive teaching and research assistantships while U.S. citizens receive more fellowship and grant support.

In the year immediately prior to being awarded the Ph.D., 46.4 percent of the 1998 doctorate recipients held a fellowship or assistantship at their graduate institution; 12.4 percent were employed elsewhere part time; and 7.6 percent classified themselves as unemployed. About one-third (33.6 percent) were employed full-time during that year, divided in equal proportions across business/industry, college/university faculty or non-faculty, elementary or secondary school teaching/administration, and other (or unspecified) occupations.¹⁷

Borrowing as a source of financial support for doctoral students is discussed in the special section on indebtedness.

¹⁷ Calculated from responses to questions A4 and A5 in the Survey. See appendix D.

Postgraduate Plans, Employment, and Location

The SED questionnaire includes a number of questions about the graduates' immediate plans for work or further study.¹⁸ The responses provide a useful overview of the numbers planning to enter academic positions, government and industry, and postdoctoral positions of research and further study. Information is also collected on the main types of work activities (research, teaching, administration, and professional services to individuals) that the graduates anticipate in their new positions and the geographic locations where the new doctorates plan to work or study immediately following graduation.

The *Summary Report 1998* examines three aspects of postgraduation plans. First is whether the new Ph.D. has a definite or indefinite commitment for employment or postdoctoral position, as categorized by broad field of study, sex, citizenship, and race/ethnicity (tables 20 and 21). The second aspect examined is the distribution between career employment and postdoctorate research and study programs of doctorate recipients with definite plans. These data are also categorized by broad field of study (table 22), sex, citizenship, and race/ethnicity (table 23), as well as by visa status and anticipated location (foreign versus U.S.) for non-U.S. citizens (tables 24 and 25). The third aspect of postgraduate plans examined is the distribution of graduates across employment sectors by sex, race/ethnicity, and citizenship status (table 26).

Definite versus Indefinite Plans

Over two-thirds (69.6 percent) of all doctorate recipients reported having definite commitments for employment or postdoctoral study or research appointment. This percentage is consistent with the rates for recent years, but somewhat lower than the rates in the 1980s (table 20). With the notable exception of the humanities, the percentage of doctorate recipients with definite commitments varies little by broad field. In the humanities, only 58.8 percent have a definite commitment.

The percentage of recipients with definite commitments also differs little by demographic groups (table 21). For example, about 2 percent fewer women than men have definite plans; U.S. citizens are more likely to have definite commitments (71.7 percent) than individuals with permanent or temporary visas (62.5 percent); and among U.S. citizens and permanent residents,¹⁹

¹⁸ None of the items in the postgraduation plans section of the questionnaire, except post-graduation location, is classified as being sufficiently "critical" to become the focus of missing data follow-ups. Consequently, the response rates to the items on postgraduation plans mirror the response rate of the questionnaire, minus a low rate of item nonresponse. For the 1998 survey, the overall response rate was 89.3 percent for the item asking if the respondent has definite plans for either career employment or further study. Among those with definite plans, 97.9 percent also provided information on whether they are planning on career employment or postdoctoral study. Among those with definite commitments for career employment, 96.3 percent provided information on their employment sector.

¹⁹ With regard to postgraduate plans, the discussion and tables of the five race/ethnicity groupings include permanent residents along with U.S. citizens.

whites are more likely to have definite plans (72.1 percent) than American Indians, blacks, Asians, or Hispanics.

Career Employment versus Postdoctorates

Among the doctorate recipients reporting definite plans, a large majority (70.9 percent) indicated that they plan to enter career employment as opposed to further study within a postdoctoral research or teaching program (table 22). Postdoctorates are far more common among graduates in the physical sciences (46.0 percent) and the life sciences (61.2 percent) than in the other broad fields. The historical trend is generally away from immediate career employment in favor of postdoctoral programs.

Differences among demographic subgroups are evident in table 23. Men are slightly more likely than women to have definite plans for a postdoctorate appointment (30.4 percent versus 27.3 percent), but international students are much more likely than U.S. citizens to have a postdoctorate lined up. Among U.S. citizens and permanent residents, Asian students are more likely to plan on pursuing a postdoctorate; black and American Indian doctorate recipients are the least likely to report obtaining postdoctorates. These differences reflect the higher rate of postdoctorates available in the physical and life sciences and the relatively large concentrations of international and Asian American students in those fields.

Postdoctoral Location of Non-U.S. Citizens

As the number of international students earning research doctorates in the United States steadily increased over the past two decades, so has the tendency for those students to remain in the United States following graduation. The 1998 data show that 74.8 percent of all non-U.S. citizens receiving research doctorates have definite commitments to remain in the United States, up from 52.4 percent in 1978 (table 25). Temporary residents have the greatest increase. The areas having the highest concentrations of non-U.S. citizens who plan to stay in the United States are chemistry (87.8 percent), biology (83.0 percent), computer sciences (81.8 percent), and physics (80.6 percent). (See table 24.)

Employment Sectors in the United States

The most common employment destination of new doctorates who have definite commitments within the United States remains academe (50.0 percent of the respondent subpopulation).²⁰ (See table 26.) The next largest group (24.5 percent) has commitments to industry or some form of self-employment, and 8.2 percent plan to work for Federal, state, or local government. The historical trend is a slight reduction in academic endeavors and government employment, coupled with increases in the industry and the self-employment sectors.

²⁰ Includes postdoctorates.

Among U.S. racial and ethnic groups, Asian doctorate recipients are more prone to go into industry or self-employment and less likely to immediately enter academe than those in the other racial and ethnic groups. Industry also is the main destination of non-U.S. citizens with definite plans to remain in the United States after graduation. (See table 26.)

Overall, 47.3 percent of doctorate recipients with definite employment plans indicated that they would hold academic appointments. Carnegie classification Research I universities awarded 67.6 percent of all doctorates and accounted for 67.8 percent of doctorate recipients who had firm academic employment.²¹ Research II, Doctoral I, and Doctoral II institutions granted 11.2 percent, 10.5 percent, and 4.8 percent of doctorates; they contributed 13.3 percent, 11.2 percent, and 4.2 percent of new doctorates to academic appointments. Expressed another way, 48.3 percent of Research I university doctorates were being employed in academe, compared with 50.7 percent, 46.1 percent, and 38.6 percent of doctorate recipients from Research II, Doctoral I, and Doctoral II institutions. (See table 27.)

Doctorate recipients from Research I universities were slightly overrepresented, relative to their distribution among all new Ph.D.s, in industrial positions and underrepresented in “other” employment. Degree earners from Research II and Doctoral I institutions exhibited some underrepresentation in industry; those from Doctoral II institutions were overrepresented in “other” employment occupations. (See table 27.)

Migration

About three in ten (28.9 percent) of the 1998 doctorate recipients who graduated from a high school in one of the 50 United States, the District of Columbia, or Puerto Rico are returning to that same area upon completion of their Ph.D.s. (They may already have returned to that state or never left it to pursue their studies.) California (47.1 percent) and Texas (46.7 percent) have the highest immediate “return” or “stay” rates of all the states. Graduates of Puerto Rican high schools were most likely to return to or remain in Puerto Rico after completion of their doctoral studies (50.3 percent). Wyoming (5.6 percent), Vermont (7.8 percent), and New Hampshire (8.4 percent) had the lowest rates of return. (See table 28.)

Retention of the doctorate recipients within their “home” states varied widely across broad field of study. At one end of the spectrum, only 20.2 percent of those in the broad field of physical sciences intended to return (or already had returned) to the state in which they received their high school diploma. At the other end, 46.6 percent of doctorate recipients in the field of education indicated postgraduate plans in their home state. For the other five broad fields, the percentages of doctorate recipients returning home are tightly clustered around 25 percent. (See table 28.) These trends may reflect underlying job market conditions and the location of more specialized economic activity.

²¹ See table 4 for overall distribution of degrees by Carnegie classifications.

SPECIAL SECTION: Indebtedness

Introduction

Student indebtedness is a topic of great import for universities, public policy officials, and of course, doctoral students and their families. This special section focuses on the indebtedness of U.S.-citizen doctorate recipients.

Less attention is paid to non-U.S.- citizen students for two reasons: (1) an overwhelming percentage of international students did not complete their undergraduate education in the United States, so they were subject to a wider variety of, and for purposes of this report largely unknown, methods of financing during those years of study, and (2) non-U.S. citizens are not eligible to participate in the most frequently utilized loan programs—Stafford (formerly known as Guaranteed Student Loans [GSL]) and Perkins (formerly National Direct Student Loans [NDSL])—for graduate and professional study in this country. Furthermore, approval of visa applications requires that international students demonstrate adequate financial resources. Loans are not an allowable source of support, and many forms of employment are denied the student, as well as the spouse. Consequently, graduate financial aid to non-U.S. citizens is far more likely to be provided through university fellowships and teaching and research assistantships than through formal loan programs.

Our knowledge about the extent of borrowing by 1998 doctorate recipients to finance their education is derived from three questions in the survey instrument (see appendix D). On two questions, respondents note whether student loans were a source of financial support during graduate school and indicate which of the various financial aid alternatives were the primary and secondary sources. The discussion on financial aid found in the main report, as well as tables 29 and 30, place student loans in context.

The descriptions and analyses in this special section focus on the responses of doctorate recipients to the third question, which concerns whether the respondent's education financing is related to borrowing. This special section includes mapping the question's one-dimensional answer to the variables of sex, broad field of study, race/ethnicity, and institution type, among others. The exact wording of the question is: "When you receive your doctoral degree, how much money will you owe that is directly related to your undergraduate and/or graduate education (tuition and fees, living expenses and supplies, transportation to and from school)?"

Of the 1998 doctoral cohort, 49.1 percent incurred some debt over the course of their undergraduate and graduate studies. The median level of indebtedness upon completion of doctoral studies for those with outstanding loans was just over \$15,000. (See the financial section in the main report and tables 29 and 30.)

This question (as asked currently and in recent years) makes no distinction between borrowing for undergraduate education as opposed to graduate studies, or even asks explicitly about borrowing to finance a doctoral program versus other graduate-level programs. Amounts that a doctoral student may have *borrowed* over the years and how much money is *still owed* are

not specifically requested; that is, no information is asked about partial repayment of existing debt due to funds being available from the student's earnings or through spousal earnings, an inheritance, or a monetary gift.

Responses may be somewhat ambiguous, depending on how respondents perceive indebtedness “*directly* related to [their] undergraduate and/or graduate education,” and how they treat borrowing from parents and/or other family members, credit card balances, and the interest due on their debt.²²

Recent Historical and Current Debt Levels

In 1998, 43.8 percent of U.S. citizens receiving research doctorates reported no outstanding indebtedness upon graduation. That aggregate percentage has not changed significantly since five years ago, when the percentage was 44.6 percent. (See table 30 and *Summary Report 1993*.²³) The percentage of respondents having educational indebtedness of less than \$5,000 has fallen since 1993 (from 13.7 percent to 10.0 percent in 1998). However, the percentage reporting at least \$30,000 in loans has steadily increased, from 6.7 percent five years ago to 13.3 percent in 1998.

By combining data for U.S. citizens, we see that in 1998, while 43.8 percent of doctorate recipients reported no outstanding loans, 27.3 percent owed \$15,000 or less and 28.9 percent owed more than \$15,000 (table 2-2).²⁴ The percentages for men and women are about the same, but as might be expected, the figures differ significantly by field of study. Those in the S&E fields have the lowest percentage of indebtedness in general and also the smallest percentage owing more than \$15,000. For the social sciences and humanities, the opposite situation holds—more doctorate recipients in these fields than any others have some amount of indebtedness and the largest percentage owes more than \$15,000 (table 2-2).

Doctorate recipients in the field of education display the highest level of being debt-free. Many education students pursue their doctorates on a part-time basis, funding their studies out of personal resources and support from their school districts. In addition, since the median age of doctorate recipients in the field of education is 45, the many years of intervening professional employment may be the primary reason those graduates show so little indebtedness. (See tables 18 and 2-2.)

²² Focus groups and cognitive interviews held to assist in possible revisions to the survey instrument revealed that respondents are likely to exclude borrowing from parents or other relatives unless a formal, explicit agreement with pre-determined payback provisions exists. Respondents do include credit card indebtedness if they consider the balances accruing as being for educational purposes. They do not think of their total loan liability as being principal plus interest, but only count the principal when describing their loans.

²³ National Research Council. 1995. *Summary Report 1993: Doctorate Recipients from United States Universities*. Washington, DC: National Academy Press.

²⁴ Overall, 50.9 percent of 1998 doctorate recipients reported no indebtedness. That figure has hovered between 50 and 53 percent for the last five years. See table 2-1 for 10-year comparisons.

The question on indebtedness was first included in the SED in 1987, and since then the wording and the response categories have remained exactly the same. *Summary Report 1988* states that of the 30,254 respondents to the debt question in 1988, over half (53 percent) reported finishing their doctoral programs free of debt related to their education and that the median level owed for those with accumulated educational debt was approximately \$7,500. Ten years later, the percentage with no debt has decreased, and the average amount owed has increased. With an adjustment for inflation (which has reduced the real value of the indebtedness at a rate of about 3 percent per year), the median level owed is about 50 percent higher. Because students are incurring an increasing amount of debt (i.e., undergraduate plus graduate loans) along the path to their doctorate degrees, postgraduate career and personal decisions (such as family formation) may be affected.

Indebtedness by Race/Ethnicity

Among U.S. racial/ethnic minorities, Asians reported the lowest indebtedness levels—47.2 percent had no loans to repay upon receipt of the doctorate. For whites the corresponding figure was 45.2 percent; for blacks, Hispanics, and American Indians, approximately 30 percent graduated with no indebtedness. Among those who did have outstanding loan balances, whites (12.6 percent) and Asians (11.4 percent) had the lowest percentages of those owing more than \$30,000; however, 22.4 percent of black doctorate recipients owed more than \$30,000. (See table 30.)

Indebtedness by Source of Support and Postdoctoral Employment Sector

In 1998 the amount of indebtedness varied by the source of support for graduate studies. Of the U.S.-citizen respondents who listed their own resources as their primary source of financial support, 46.7 percent reported that they had no outstanding debt balance upon receipt of their doctorates. This finding is very likely an effect of the education doctorate recipients funding their educations out of their own resources and therefore graduating without any debt (see table 19). Those who had been primarily supported by teaching or research assistantships, traineeships, or fellowships had fewer numbers graduating free of debt. However, 33.2 percent of the group supported by their own resources owed more than \$15,000, one of the highest proportions of those in debt. (See table 2-4.)

Variation was also seen by postdoctoral plans for the 1998 cohort. U.S.-citizen doctorate recipients who plan to work in the academic sector reported the highest percentage of debt (58.3 percent) and also the highest proportion owing more than \$15,000 (31.6 percent). Those intending to work in government had the least amount in educational loan balances outstanding and the lowest percentage of graduates owing more than \$15,000. (See table 2-5.)

Indebtedness by Institutional Type

Few, if any, differences in indebtedness were observed by institutional type and classification. The percentages of U.S.-citizen doctorate recipients in public and private universities who report no indebtedness are almost the same (44.3 percent versus 42.8 percent), and the percentages from public and private institutions owing more than \$15,000 are also about the same (28.0 percent versus 30.7 percent) (see table 2-2). This uniformity appears to hold true in a comparison by Carnegie classification, in which the percentage of new Ph.D.s having no debt ranges from 41.2 percent in Research II universities to 49.4 percent in Doctoral II institutions. (See table 2-2.)

Indebtedness by Citizenship

As shown in table 2-2 and noted above, 43.8 percent of doctorate recipients who are U.S. citizens reported no educational indebtedness; 27.3 percent expected to owe \$15,000 or less upon receipt of the Ph.D.; and 28.9 percent incurred more than \$15,000 in loans. For non-U.S. citizens—permanent residents plus those on temporary visas—the corresponding figures are 67.4 percent without education debt, 19.5 percent owing \$15,000 or less, and 13.1 percent owing more than \$15,000. (See table 2-3.) These differences hold across all seven broad fields of study and across institutional types and classifications.

The aggregate differential between U.S.-citizen and non-U.S.-citizen doctorate recipients who report being debt-free at graduation (43.8 percent versus 67.4 percent) remains approximately the same by institution type (Carnegie classification), by sex, and for five of the seven broad fields. The differential narrows only for the fields of education and professional/other. (See section in main report on Financial Resources in Support of Doctoral Programs for a discussion of possible causes of the difference in borrowing by citizenship status.)

Undergraduate versus Graduate Indebtedness

Currently the indebtedness question in the survey instrument does not differentiate between graduate and undergraduate loans.²⁵ However, one way to distinguish the different amounts is to segment the doctorate population by the type of institution—public or private—from which the Ph.D.s received their baccalaureate degrees.

U.S.-citizen doctorate recipients can be divided by baccalaureate institution into four populations: (1) those who received their B.A.s from public colleges or universities and also earned doctorates at public institutions; (2) those who were undergraduates at public institutions but earned their Ph.D.s from private universities; (3) those with B.A.s from private colleges or universities and doctorates from public institutions; and, (4) those who spent both their

²⁵ Revisions to the questionnaire for 2001 and beyond will include subparts to capture that distinction.

undergraduate and doctoral years at private institutions. Table 2-6 shows the doctorate population divided into those four mutually exclusive categories.

The data reveal that the level of indebtedness, including having no loans to repay, is independent of the type of institution that conferred the baccalaureate and doctorate. Very little variation exists across the three indebtedness levels by the four populations; regardless of enrollment pattern, approximately 42-45 percent of doctorate recipients had no outstanding loans; between 25 and 30 percent owe less than \$15,000; and 25 to 30 percent owe more than \$15,000. (See table 2-6.)

Indebtedness by Demographic Background

Borrowing by U.S.-citizen doctorate recipients appears to be independent of parents' levels of education, which serves in this analysis as a crude proxy for family income. (See table 2-7.) No discernable pattern is evident by the level of education reached by fathers, mothers, or both parents for members of the 1998 doctorate cohort having no indebtedness; the variation by parental education level is remarkably small. The same pattern holds for 1998 doctorate recipients at the other end of the spectrum—those owing more than \$15,000.

The level of indebtedness, however, is not independent of marital status and number of dependents. For U.S. citizens, more married (47.5 percent) doctorate recipients (including those in a marriage-like relationship) reported having no outstanding education debt, as compared with those widowed, separated, or divorced (36.1 percent) and those who had never been married (38.1 percent). A spouse may well represent, on average, a source of support and a net financial asset to the doctorate recipient. (See table 2-8).

The effect of dependents on indebtedness is ambiguous.²⁶ The survey instrument (see appendix D) merely asks for the total number of those who receive at least one-half of their support from the respondent—it does not distinguish between spouse/partner and children; nor provide ages for the children. Neither does this question distinguish between doctorate recipients and their spouses providing over half of the financial resources for their households. If the spouse supported the household, the respondent may have answered zero dependents even though married. A comparison of the survey responses showed 62.9 percent of all U.S.-citizen doctorate recipients were married or living in a marriage-like relationship, but 55.0 percent reported having zero dependents.²⁷ Of these respondents with no dependents, 42.1 percent reported no indebtedness, as compared with 43.2 percent of degree earners with one dependent, 47.7 percent of recipients with two dependents, and 47.9 percent of those with three or more dependents. (See table 2-8.)

²⁶ Improvements in the question wording and an additional question for the 2001 survey instrument should resolve or lessen the ambiguity on this point.

²⁷ Overall, 55.0 percent of recipients responded no dependents; 19.9 percent responded one dependent; 12.7 percent, two dependents; and 12.4 percent, three or more dependents.

DATA TABLES

1998 SURVEY OF EARNED DOCTORATES

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Table 1. Doctorates awarded by U.S. colleges and universities, 1958-1998

Year	Number of Ph.D.s	Percent Change*	Year	Number of Ph.D.s	Percent Change*	Year	Number of Ph.D.s	Percent Change*
1957	8,611	1.1	1971	31,867	8.0	1985	31,297	-0.1
1958	8,773	1.9	1972	33,041	3.7	1986	31,902	1.9
1959	9,213	5.0	1973	33,755	2.2	1987	32,370	1.5
1960	9,733	5.6	1974	33,047	-2.1	1988	33,500	3.5
1961	10,413	7.0	1975	32,952	-0.3	1989	34,327	2.5
1962	11,500	10.4	1976	32,946	0.0	1990	36,067	5.1
1963	12,728	10.7	1977	31,716	-3.7	1991	37,534	4.1
1964	14,325	12.5	1978	30,875	-2.7	1992	38,890	3.6
1965	16,340	14.1	1979	31,239	1.2	1993	39,801	2.3
1966	17,949	9.8	1980	31,020	-0.7	1994	41,034	3.1
1967	20,403	13.7	1981	31,356	1.1	1995	41,743	1.7
1968	22,937	12.4	1982	31,111	-0.8	1996	42,414	1.7
1969	25,743	12.2	1983	31,281	0.5	1997	42,555	0.3
1970	29,498	14.6	1984	31,337	0.2	1998	42,683	0.3

*From previous year.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2. Doctorates awarded by U.S. colleges and universities per institution, 1961-1998

Year	Number of Ph.D.s	Number of Institutions	Ph.D.s per Institution	Year	Number of Ph.D.s	Number of Institutions	Ph.D.s per Institution
1961	10,413	174	60	1980	31,020	325	95
1962	11,500	175	66	1981	31,356	328	96
1963	12,728	186	68	1982	31,111	333	93
1964	14,325	196	73	1983	31,281	337	93
1965	16,340	206	79	1984	31,337	336	93
1966	17,949	216	83	1985	31,297	342	92
1967	20,403	220	93	1986	31,902	345	92
1968	22,937	230	100	1987	32,370	353	92
1969	25,743	232	111	1988	33,500	355	94
1970	29,498	242	122	1989	34,327	360	95
1971	31,867	264	121	1990	36,067	358	101
1972	33,041	271	122	1991	37,534	367	102
1973	33,755	290	116	1992	38,890	370	105
1974	33,047	297	111	1993	39,801	375	106
1975	32,952	297	111	1994	41,034	377	109
1976	32,946	299	110	1995	41,743	384	109
1977	31,716	309	103	1996	42,415	392	108
1978	30,875	316	98	1997	42,555	382	111
1979	31,239	316	99	1998	42,683	387	110

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 3. Top 20 doctorate-granting institutions by broad field of doctorate, 1998

Institution	Number of Ph.D.s	Institution	Number of Ph.D.s
All Fields		Physical Sciences*	
University of Texas-Austin	834	University of California-Berkley	156
University of Wisconsin-Madison	760	University of Wisconsin-Madison	139
University of California-Berkeley	748	University of Illinois-Urbana/Champaign	139
University of Minnesota-Twin Cities	724	Stanford University	138
University of Illinois-Urbana/Champaign	706	University of Texas-Austin	129
University of Michigan-Ann Arbor	687	Massachusetts Institute of Technology	129
Ohio State University-Main Campus	664	University of Michigan-Ann Arbor	122
University of California-Los Angeles	605	California Institute of Technology	116
Pennsylvania State University-Main Campus	597	Purdue University-Main Campus	108
Stanford University	595	Ohio State University-Main Campus	108
Harvard University	560	University of Minnesota-Twin Cities	106
Nova Southeastern University	543	University of California-Los Angeles	106
Texas A&M University-College Station	528	University of Washington	103
Purdue University-Main Campus	496	Harvard University	101
Massachusetts Institute of Technology	492	Cornell University-Endowed Colleges	101
University of Washington	478	University of Arizona	99
University of Maryland-College Park	476	Texas A&M University-College Station	99
Cornell University-Endowed Colleges	476	University of Maryland-College Park	97
Columbia University in the City of New York	462	University of North Carolina-Chapel Hill	92
University of Florida	457	University of Florida	90
Engineering		Life Sciences	
Massachusetts Institute of Technology	229	University of Wisconsin-Madison	185
Stanford University	177	University of California-Davis	175
Georgia Institute of Technology-Main Campus	175	University of Minnesota-Twin Cities	171
University of Illinois-Urbana/Champaign	175	Johns Hopkins University	161
University of Michigan-Ann Arbor	175	Ohio State University-Main Campus	158
University of Texas-Austin	160	Harvard University	152
University of California-Berkeley	153	University of California-Berkeley	141
Pennsylvania State University-Main Campus	144	University of Florida	141
Purdue University-Main Campus	139	Texas A&M University-College Station	137
Texas A&M University-College Station	115	Cornell University-Endowed Colleges	128
University of Wisconsin-Madison	109	University of Illinois-Urbana/Champaign	117
Carnegie Mellon University	99	University of North Carolina-Chapel Hill	116
University of Minnesota-Twin Cities	98	University of Georgia	115
University of Florida	97	University of Washington	113
Northwestern University	94	Michigan State University	111
North Carolina State University-Raleigh	94	Purdue University-Main Campus	111
Virginia Polytechnic Institute and State Univ.	93	University of Michigan-Ann Arbor	108
Ohio State University-Main Campus	89	Pennsylvania State University-Main Campus	103
Cornell University-Endowed Colleges	84	University of California-Los Angeles	96
University of Maryland-College Park	82	University of Texas-Austin	96

Table 3, Continued. Top 20 doctorate-granting institutions by broad field of doctorate, 1998

Institution	Number of Ph.D.s	Institution	Number of Ph.D.s
Social Sciences		Humanities	
Nova Southeastern University	149	University of Texas-Austin	151
University of Wisconsin-Madison	123	New York University	147
Columbia University in the City of New York	107	University of California-Berkeley	138
University of California-Berkeley	105	University of California-Los Angeles	130
University of Chicago	105	Harvard University	128
University of Michigan-Ann Arbor	104	Columbia University in the City of New York	124
Harvard University	101	Yale University	115
University of California-Los Angeles	99	University of Chicago	113
CUNY Graduate School and University	99	Indiana University-Bloomington	107
University of Texas-Austin	98	University of Michigan-Ann Arbor	107
University of Illinois-Urbana/Champaign	92	University of Wisconsin-Madison	98
University of Minnesota-Twin Cities	88	University of Minnesota-Twin Cities	96
Michigan State University	87	Princeton University	94
University of Pennsylvania	87	University of Pennsylvania	91
Northwestern University	82	CUNY Graduate School and University	87
Ohio State University-Main Campus	80	Ohio State University-Main Campus	87
University of Maryland-College Park	79	Stanford University	86
Yale University	78	University of Illinois-Urbana/Champaign	79
California School of Prof. Psych.-San Diego	76	University of Washington	77
Texas A&M University-College Station	76	Cornell University-Endowed Colleges	69
Education		Professional/Other Fields	
Nova Southeastern University	298	Nova Southeastern University	58
Teachers College at Columbia University	162	University of Texas-Austin	55
University of Texas-Austin	145	Florida State University	43
Pennsylvania State University-Main Campus	128	University of Wisconsin-Madison	42
University of Minnesota-Twin Cities	125	University of Minnesota-Twin Cities	40
Virginia Polytechnic Institute and State Univ.	122	New York University	40
Ohio State University-Main Campus	108	University of Maryland-College Park	36
University of Southern California	104	Michigan State University	36
University of Georgia	95	Pennsylvania State University-Main Campus	36
Temple University	90	University of California-Berkeley	35
University of Sarasota	76	University of California-Los Angeles	35
University of Illinois-Urbana/Champaign	76	University of Pennsylvania	35
Northern Illinois University	75	University of Southern California	34
Florida State University	74	University of Colorado-Boulder	34
Indiana University-Bloomington	72	Ohio State University-Main Campus	34
University of Pittsburgh-Main Campus	69	Indiana University-Bloomington	32
University of Missouri-Columbia	65	University of Michigan-Ann Arbor	31
North Carolina State University-Raleigh	65	University of North Carolina-Chapel Hill	31
University of Houston-University Park	65	University of Alabama	29
University of California-Los Angeles	64	Walden University	29

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 4. Distribution of doctorate institutions and doctoral degrees by Carnegie classification

Carnegie Category	Number of Institutions	Number of Ph.D.s	Percent of all Ph.D.s	Average Number of Ph.D.s per Institution
Research I	89	28,861	67.6	324
Research II	37	4,799	11.2	130
Doctoral I	50	4,486	10.5	90
Doctoral II	58	2,061	4.8	36
Other	153	2,476	5.8	16

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates and a Classification of Institutions of Higher Education, 1994 Edition, The Carnegie Foundation for Advancement of Teaching.

Research Universities I: These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually \$40 million or more in federal support.

Research Universities II: These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually between \$15.5 million and \$40 million in federal support.

Doctoral Universities I: These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least 40 doctoral degrees annually in five or more disciplines.

Doctoral Universities II: These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award annually at least 10 doctoral degrees – in three or more disciplines – or 20 or more doctoral degrees in one or more disciplines.

Other: Specialized Institutions; Master's (Comprehensive) Colleges and Universities I; Master's (Comprehensive) Colleges and Universities II; Baccalaureate (Liberal Arts) Colleges I; Baccalaureate Colleges II.

Table 5. Major field of doctorate recipients for selected years, 1968-1998

Field	1968	1973	1978	1983	1988	1993	1998
All Fields	22,937	33,755	30,875	31,281	33,500	39,801	42,683
Physical Sciences*	4,653	5,311	4,193	4,425	5,309	6,496	6,739
Engineering	2,855	3,364	2,423	2,781	4,187	5,698	5,919
Life Sciences	3,707	5,168	5,041	5,553	6,164	7,395	8,540
Social Sciences	3,495	5,757	6,038	6,096	5,781	6,545	7,075
Humanities	3,467	5,414	4,231	3,500	3,555	4,482	5,499
Education	4,029	7,238	7,194	7,174	6,362	6,689	6,559
Professional/Other Fields	731	1,503	1,755	1,752	2,142	2,496	2,352
Physical Sciences							
Physics & Astronomy	1,436	1,589	1,067	1,043	1,302	1,544	1,584
Chemistry	1,803	1,855	1,544	1,758	2,015	2,137	2,217
Earth, Atmos., & Marine Science	443	634	623	637	728	789	838
Mathematics	971	1,232	838	701	749	1,146	1,177
Computer Sciences†	0	1	121	286	515	880	923
Life Sciences							
Biological Sciences	2,827	3,648	3,516	3,741	4,111	5,092	5,848
Health Sciences	196	486	512	639	882	1,197	1,500
Agricultural Sciences	684	1,034	1,013	1,173	1,171	1,106	1,192
Social Sciences							
Psychology	1,464	2,458	3,055	3,347	3,074	3,420	3,681
Anthropology	138	326	399	373	325	342	425
Economics	747	942	800	813	852	930	998
Political Sci./International Rel.	580	908	695	473	469	609	759
Sociology	370	599	610	525	449	513	549
Other Social Sciences	196	524	479	565	612	731	663
Humanities							
History	741	1,216	852	616	603	726	988
English Language & Literature	930	1,414	1,025	715	717	948	1,076
Foreign Language & Literature	526	917	637	504	430	576	642
Other Humanities	1,270	1,867	1,717	1,665	1,805	2,232	2,793
Education							
Teacher Education	493	675	551	483	473	428	339
Teaching Fields	984	1,536	1,352	1,327	989	943	951
Other Education	2,552	5,027	5,291	5,364	4,900	5,318	5,269
Professional/Other							
Business & Management	440	785	713	750	1,033	1,281	1,165
Communications	49	199	292	250	247	321	372
Other Professional Fields	203	446	736	730	812	867	721
Other Fields	39	73	14	22	50	27	94

*Includes mathematics and computer sciences.

†Computer sciences first appeared on the survey form in 1978.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 6. Doctorate recipients by selected subfield and percent female, 1988 and 1998

Subfield/Discipline	1988		1998		Percent Change in Number of Ph.D.s, 1988-1998
	Number of Ph.D.s	Percent Ph.D.s to Females	Number of Ph.D.s	Percent Ph.D.s to Females	
Mathematics	749	16.2	1,177	25.2	57.1
Computer Sciences	514	10.9	923	17.0	79.6
Physics & Astronomy	1,302	10.0	1,584	14.1	21.7
Chemistry	2,018	21.3	2,217	31.3	9.9
Earth, Atmos. & Marine Sci.	726	19.8	838	27.2	15.4
Biochemistry	613	33.1	798	43.7	30.2
Cell Biology	117	47.0	299	51.5	55.6
Ecology	155	30.1	292	39.0	88.4
Molecular Biology	362	35.6	741	43.7	104.7
Microbiology	333	36.0	384	44.0	15.3
Neuroscience	161	36.0	412	40.8	155.9
Health Sciences	867	62.6	1,500	67.1	73.0
Agricultural Sciences	1,170	18.5	1,192	28.3	1.9
Psychology	3,058	54.8	3,676	66.9	20.2
Anthropology	325	52.0	425	56.2	30.8
Economics	825	19.8	973	27.4	17.9
Political Science & Govt.	391	24.3	662	36.7	69.3
Sociology	449	53.0	549	55.4	22.3
History	603	36.0	988	39.0	63.8
Linguistics	166	50.0	219	56.2	31.9
Art History	132	61.4	220	75.0	66.7
Music	505	30.5	694	42.4	37.4
Philosophy	223	23.8	408	29.4	83.0
Language & Literature	1,146	56.6	1,718	57.9	49.9
Business & Management	1,039	23.8	1,165	32.3	12.1

See appendix table A-1.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 7. Sex of doctorate recipients by broad field for selected years, 1958-1998 (by number [N] and percent)

Field/Sex	1958		1963		1968		1973		1978		1983		1988		1993		1998		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
All Fields																			
Group Total	8,773	100.0	12,728	100.0	22,937	100.0	33,755	100.0	30,875	100.0	31,281	100.0	33,500*	100.0	39,801†	100.0	42,683‡	100.0	
Male	7,782	88.7	11,336	89.1	20,005	87.2	27,670	82.0	22,553	73.0	20,748	66.3	21,680	64.7	24,382	61.3	24,653	57.8	
Female	991	11.3	1,392	10.9	2,932	12.8	6,085	18.0	8,322	27.0	10,533	33.7	11,819	35.3	15,122	38.0	17,856	41.8	
Physical Sciences§																			
Group Total	1,890	100.0	2,910	100.0	4,653	100.0	5,311	100.0	4,193	100.0	4,425	100.0	5,309	100.0	6,496	100.0	6,739	100.0	
Male	1,819	96.2	2,786	95.7	4,420	95.0	4,929	92.8	3,754	89.5	3,808	86.1	4,430	83.4	5,083	78.2	5,104	75.7	
Female	71	3.8	124	4.3	233	5.0	382	7.2	439	10.5	617	13.9	879	16.6	1,342	20.7	1,600	23.7	
Engineering																			
Group Total	629	100.0	1,357	100.0	2,855	100.0	3,364	100.0	2,423	100.0	2,781	100.0	4,187	100.0	5,698	100.0	5,919	100.0	
Male	626	99.5	1,347	99.3	2,843	99.6	3,318	98.6	2,370	97.8	2,657	95.5	3,901	93.2	5,096	89.4	5,108	86.3	
Female	3	0.5	10	0.7	12	0.4	46	1.4	53	2.2	124	4.5	286	6.8	522	9.2	769	13.0	
Life Sciences																			
Group Total	1,622	100.0	2,083	100.0	3,707	100.0	5,168	100.0	5,041	100.0	5,553	100.0	6,164	100.0	7,395	100.0	8,540	100.0	
Male	1,459	90.0	1,876	90.1	3,197	86.2	4,246	82.2	3,882	77.0	3,832	69.0	3,893	63.2	4,262	57.6	4,640	54.3	
Female	163	10.0	207	9.9	510	13.8	922	17.8	1,159	23.0	1,721	31.0	2,271	36.8	3,086	41.7	3,876	45.4	
Social Sciences																			
Group Total	1,568	100.0	2,027	100.0	3,495	100.0	5,757	100.0	6,038	100.0	6,096	100.0	5,780	100.0	6,545	100.0	7,075	100.0	
Male	1,362	86.9	1,763	87.0	2,941	84.1	4,546	79.0	4,177	69.2	3,690	60.5	3,178	55.0	3,289	50.3	3,206	45.3	
Female	206	13.1	264	13.0	554	15.9	1,211	21.0	1,861	30.8	2,406	39.5	2,602	45.0	3,229	49.3	3,838	54.2	
Humanities																			
Group Total	1,362	100.0	1,842	100.0	3,467	100.0	5,414	100.0	4,231	100.0	3,500	100.0	3,555	100.0	4,482	100.0	5,499	100.0	
Male	1,160	85.2	1,538	83.5	2,735	78.9	3,864	71.4	2,635	62.3	1,969	56.3	1,980	55.7	2,324	51.9	2,814	51.2	
Female	202	14.8	304	16.5	732	21.1	1,550	28.6	1,596	37.7	1,531	43.7	1,575	44.3	2,128	47.5	2,675	48.6	
Education																			
Group Total	1,491	100.0	2,137	100.0	4,029	100.0	7,238	100.0	7,194	100.0	7,174	100.0	6,362	100.0	6,689	100.0	6,559	100.0	
Male	1,180	79.1	1,720	80.5	3,228	80.1	5,455	75.4	4,339	60.3	3,555	49.6	2,848	44.8	2,748	41.1	2,422	36.9	
Female	311	20.9	417	19.5	801	19.9	1,783	24.6	2,855	39.7	3,619	50.4	3,514	55.2	3,921	58.6	4,120	62.8	
Professional/Other																			
Group Total	211	100.0	372	100.0	731	100.0	1,503	100.0	1,755	100.0	1,752	100.0	2,142	100.0	2,496	100.0	2,352	100.0	
Male	176	83.4	306	82.3	641	87.7	1,312	87.3	1,396	79.5	1,237	70.6	1,450	67.7	1,580	63.3	1,359	57.8	
Female	35	16.6	66	17.7	90	12.3	191	12.7	359	20.5	515	29.4	692	32.3	894	35.8	978	41.6	

*Total includes 1 individual of unknown sex.

†Total includes 297 individuals of unknown sex.

‡Total includes 174 individuals of unknown sex.

§Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 8. Race/ethnicity of U.S. citizen doctorate recipients by broad field for selected years, 1978-1998

Field	Race/Ethnicity	1978	1983	1988	1993	1998
All Fields	Group Total	25,291	24,360	23,290	26,449	28,218
	Known Race/Ethnicity	23,778	23,740	22,907	26,217	27,352
	Asian*	390	492	614	891	1,168
	Black	1,031	922	818	1,111	1,467
	Hispanic	486	539	595	834	1,190
	American Indian†	60	81	94	120	189
	White	21,811	21,706	20,786	23,261	23,338
Physical Sciences‡	Group Total	3,200	3,138	3,238	3,477	3,660
	Known Race/Ethnicity	2,947	3,024	3,150	3,433	3,532
	Asian*	81	93	112	182	190
	Black	51	26	34	41	82
	Hispanic	30	37	70	87	102
	American Indian†	5	9	11	11	19
	White	2,780	2,859	2,923	3,112	3,139
Engineering	Group Total	1,261	1,163	1,780	2,228	2,543
	Known Race/Ethnicity	1,168	1,119	1,738	2,208	2,461
	Asian*	63	66	141	217	244
	Black	9	19	19	41	76
	Hispanic	20	18	43	56	100
	American Indian†	2	0	4	2	13
	White	1,074	1,016	1,531	1,892	2,028
Life Sciences	Group Total	4,030	4,437	4,406	4,830	5,288
	Known Race/Ethnicity	3,794	4,335	4,342	4,786	5,153
	Asian*	90	132	128	217	291
	Black	73	64	72	123	163
	Hispanic	47	48	85	126	212
	American Indian†	8	8	18	14	25
	White	3,576	4,083	4,039	4,306	4,462
Social Sciences	Group Total	5,118	5,048	4,349	4,951	5,312
	Known Race/Ethnicity	4,815	4,910	4,283	4,914	5,130
	Asian*	52	64	85	104	172
	Black	170	185	163	205	277
	Hispanic	93	137	134	182	293
	American Indian†	6	12	12	19	42
	White	4,494	4,512	3,889	4,404	4,346
Humanities	Group Total	3,780	2,984	2,795	3,510	4,241
	Known Race/Ethnicity	3,560	2,903	2,751	3,470	4,101
	Asian*	29	35	37	60	112
	Black	80	73	77	95	150
	Hispanic	111	96	93	130	157
	American Indian†	8	6	7	13	22
	White	3,332	2,693	2,537	3,172	3,660
Education	Group Total	6,498	6,246	5,300	5,791	5,529
	Known Race/Ethnicity	6,175	6,143	5,238	5,762	5,382
	Asian*	57	74	82	85	102
	Black	585	493	373	516	619
	Hispanic	157	181	151	213	277
	American Indian†	29	45	36	51	50
	White	5,347	5,350	4,596	4,897	4,334
Professional/Other	Group Total	1,404	1,344	1,422	1,662	1,645
	Known Race/Ethnicity	1,319	1,306	1,405	1,644	1,593
	Asian*	18	28	29	26	57
	Black	63	62	80	90	100
	Hispanic	28	22	19	40	49
	American Indian†	2	1	6	10	18
	White	1,208	1,193	1,271	1,478	1,369

*Includes Pacific Islander.

†Includes Alaskan Native.

‡Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 9. Major field of U.S. citizen Ph.D.s by race/ethnicity, 1998

Field	Total U.S. Citizen Ph.D.s	Number with Known	U.S. Citizens by Race/Ethnicity				
			Asian*	Black	His- panic	Amer. Indian†	White
All Fields	28,218	27,352	1,168	1,467	1,190	189	23,338
Physical Sciences	3,660	3,532	190	82	102	19	3,139
Physics & Astronomy	832	799	48	11	15	3	722
Chemistry	1,275	1,240	71	39	34	7	1,089
Earth, Atmos., & Marine Science	513	496	6	8	15	3	464
Mathematics	573	552	25	12	25	3	487
Computer Sciences	467	445	40	12	13	3	377
Engineering	2,543	2,461	244	76	100	13	2,028
Life Sciences	5,288	5,153	291	163	212	25	4,462
Biological Sciences	3,726	3,630	250	98	150	12	3,120
Health Sciences	1,035	1,010	32	57	36	4	881
Agricultural Sciences	527	513	9	8	26	9	461
Social Sciences	5,312	5,130	172	277	293	42	4,346
Psychology	3,167	3,048	93	149	197	31	2,578
Anthropology	325	302	9	10	19	5	259
Economics	409	400	29	12	18	0	341
Political Sci./International Rel.	578	567	17	36	27	3	484
Sociology	407	396	13	36	13	3	331
Other Social Sciences	426	417	11	34	19	0	353
Humanities	4,241	4,101	112	150	157	22	3,660
History	830	795	23	33	25	5	709
English Language & Lit.	946	920	20	30	28	4	838
Foreign Language & Lit.	405	390	6	4	52	3	325
Other Humanities	2,060	1,996	63	83	52	10	1,788
Education	5,529	5,382	102	619	277	50	4,334
Teacher Education	288	265	4	21	10	4	226
Teaching Fields	752	740	14	57	37	7	625
Other Education	4,489	4,377	84	541	230	39	3,483
Professional/Other	1,645	1,593	57	100	49	18	1,369
Business & Management	765	736	26	39	20	9	642
Communications	289	283	7	21	7	2	246
Other Professional Fields	566	553	24	39	21	7	462
Other Fields	25	21	0	1	1	0	19

NOTE: See technical notes in appendix C for the rate of nonresponse to the survey question on race/ethnicity.

*Asian includes Pacific Islander.

†American Indians includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 10. Leading doctorate-granting institutions of U.S. minority Ph.D.s, 1994-1998

Institution	Number of Ph.D.s	Institution	Number of Ph.D.s
Asian*		Hispanic	
University of California-Berkeley	291	University of Texas-Austin	176
University of California-Los Angeles	268	Puerto Rico-Rio Piedras	154
Stanford University	194	University of California-Berkeley	137
Harvard University	136	University of California-Los Angeles	114
Massachusetts Institute of Technology	134	Caribbean Center for Advanced Studies, PR	112
University of Michigan-Ann Arbor	133	Texas A&M University-College Station	111
University of Illinois-Urbana/Champaign	128	Stanford University	94
University of Southern California	122	Harvard University	86
University of California-Davis	104	Arizona State University-Main Campus	85
Columbia University, NYC	97	University of Arizona	79
Purdue University-Main Campus	90	University of Miami	78
University of Washington	81	University of Michigan-Ann Arbor	75
University of Wisconsin-Madison	81	University of New Mexico	75
University of Hawaii-Manoa	79	University of Southern California	72
Northwestern University	76	Nova Southeastern University	66
Yale University	75	University of California-Davis	64
University of California-San Diego	73	New York University	64
University of Texas-Austin	68	Pennsylvania State University Main Campus	64
University of Chicago	67	University of Colorado-Boulder	62
University of Maryland-College Park	67	University of Wisconsin-Madison	62
<i>Top 20 Institutions</i>	<i>2,364</i>	<i>Top 20 Institutions</i>	<i>1,830</i>
<i>Total Institutions Reported (311)</i>	<i>5,645</i>	<i>Total Institutions Reported (304)</i>	<i>4,990</i>
Black		American Indian†	
Nova Southeastern University	272	University of Oklahoma-Norman	28
Howard University	224	Oklahoma State University-Main Campus	27
University of Michigan Ann Arbor	140	Pennsylvania State University-Main Campus	17
Ohio State University-Main Campus	128	University of Washington	15
Wayne State University	119	University of Arizona	14
University of Maryland-College Park	118	University of California-Berkeley	14
Clark Atlanta University	106	University of California-Los Angeles	14
Virginia Polytechnic Institute & State University	105	University of Michigan-Ann Arbor	14
Teachers College at Columbia University, NYC	104	Stanford University	14
Temple University	100	University of Arkansas-Fayetteville	13
Florida State University	99	Harvard University	12
North Carolina State University-Raleigh	86	Michigan State University	11
University of Illinois-Urbana/Champaign	82	North Carolina State University-Raleigh	11
Walden University	79	University of Texas-Austin	11
Michigan State University	78	University of Wisconsin-Madison	11
University of California-Berkeley	77	University of Georgia	10
University of North Carolina-Chapel Hill	75	University of Missouri-Columbia	9
University of South Carolina-Columbia	75	University of New Mexico	9
University of Texas-Austin	74	University of North Dakota-Main Campus	9
University of California-Los Angeles	71	Texas A&M University-College Station	9
<i>Top 20 Institutions</i>	<i>2,212</i>	<i>Top 20 Institutions</i>	<i>272</i>
<i>Total Institutions Reported (310)</i>	<i>6,528</i>	<i>Total Institutions Reported (217)</i>	<i>833</i>

*Includes Pacific Islander.

†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 11. Citizenship status of doctorate recipients by broad field for selected years, 1968-1998

Field/Citizenship	1968	1973	1978	1983	1988	1993	1998
All Fields	22,937	33,755	30,875	31,281	33,500	39,801	42,683
U.S. Citizen	19,229	27,914	25,291	24,360	23,290	26,449	28,218
Non-U.S., Permanent Visa	1,046	1,998	1,344	1,274	1,622	2,259	2,696
Non-U.S., Temporary Visa	2,268	3,174	3,421	4,498	6,195	9,932	8,642
Unknown	394	669	819	1,149	2,393	1,161	3,127
Physical Sciences*	4,653	5,311	4,193	4,425	5,309	6,496	6,739
U.S. Citizen	3,865	4,101	3,200	3,138	3,238	3,477	3,660
Non-U.S., Permanent Visa	187	433	257	223	252	456	551
Non-U.S., Temporary Visa	510	683	646	925	1,483	2,363	2,041
Unknown	91	94	90	139	336	200	487
Engineering	2,855	3,364	2,423	2,781	4,187	5,698	5,919
U.S. Citizen	2,105	2,142	1,261	1,163	1,780	2,228	2,543
Non-U.S., Permanent Visa	273	557	325	319	366	469	478
Non-U.S., Temporary Visa	436	622	768	1,170	1,721	2,784	2,392
Unknown	41	43	69	129	320	217	506
Life Sciences	3,707	5,168	5,041	5,553	6,164	7,395	8,540
U.S. Citizen	2,894	4,062	4,030	4,437	4,406	4,830	5,288
Non-U.S., Permanent Visa	186	367	215	190	305	419	732
Non-U.S., Temporary Visa	585	649	668	776	1,069	1,988	1,946
Unknown	42	90	128	150	384	158	574
Social Sciences	3,495	5,757	6,038	6,096	5,781	6,545	7,075
U.S. Citizen	2,961	4,885	5,118	5,048	4,349	4,951	5,312
Non-U.S., Permanent Visa	149	236	211	191	223	323	299
Non-U.S., Temporary Visa	310	519	488	570	709	1,075	912
Unknown	75	117	221	287	500	196	552
Humanities	3,467	5,414	4,231	3,500	3,555	4,482	5,499
U.S. Citizen	3,105	4,817	3,780	2,984	2,795	3,510	4,241
Non-U.S., Permanent Visa	147	232	139	118	168	267	338
Non-U.S., Temporary Visa	152	251	198	258	350	572	537
Unknown	63	114	114	140	242	133	383
Education	4,029	7,238	7,194	7,174	6,362	6,689	6,559
U.S. Citizen	3,736	6,724	6,498	6,246	5,300	5,791	5,529
Non-U.S., Permanent Visa	54	105	128	148	177	177	171
Non-U.S., Temporary Visa	184	290	412	555	481	546	424
Unknown	55	119	156	225	404	175	435
Professional/Other	731	1,503	1,755	1,752	2,142	2,496	2,352
U.S. Citizen	563	1,183	1,404	1,344	1,422	1,662	1,645
Non-U.S., Permanent Visa	50	68	69	85	131	148	127
Non-U.S., Temporary Visa	91	160	241	244	382	604	390
Unknown	27	92	41	79	207	82	190

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 12. Top 30 countries of origin of non-U.S. citizens earning doctorates at U.S. colleges and universities, 1998 (ranked by number of Ph.D.s)

Country	Number of Ph.D.s	Country	Number of Ph.D.s
1. China, Peoples Republic of	2,571	16. Italy	115
2. India	1,259	17. Romania	104
3. China, Republic of (Taiwan)	1,100	18. Hong Kong	100
4. Korea	1,027	19. Iran	97
5. Canada	448	20. Spain	95
6. Germany	288	21. Argentina	94
7. Russia	216	22. Egypt	88
8. Japan	205	23. Yugoslavia	79
9. Mexico	192	{ 23. Jordan	79
10. Brazil	186	25. Australia	77
11. Great Britain, UK	182	{ 26. Israel	76
12. Turkey	180	{ 26. Venezuela	76
13. Thailand	169	28. Indonesia	73
14. Greece	128	29. Philippines	67
15. France	116	30. Malaysia	66

Top 30 Countries of Origin 9,371
Total Countries Reported (169) 42,683

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 13. Leading doctorate-granting institutions of non-U.S. citizen Ph.D.s, 1998 (ranked by number of Ph.D.s)

Institution	Number of Ph.D.s	Institution	Number of Ph.D.s
University of Texas-Austin	249	Pennsylvania State University-Main Campus	179
University of Minnesota-Twin Cities	241	Columbia University, New York City	174
University of Wisconsin-Madison	224	University of Florida	171
Texas A&M University-College Station	223	University of California-Berkeley	169
Ohio State University-Main Campus	221	Harvard University	169
Purdue University-Main Campus	215	University of California-Los Angeles	149
University of Michigan-Ann Arbor	208	University of Southern California	141
Stanford University	203	Iowa State University	136
University of Illinois-Urbana/Champaign	188	University of Maryland-College Park	136
Cornell University-Endowed Colleges	186	University of Pittsburgh-Main Campus	132
		Top 20 Institutions	3,714
		Total Institutions Reported (335)	11,338

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 14. Leading doctorate-granting institutions of non-U.S. citizen Ph.D.s, 1998 (ranked by percentage of Ph.D.s*)

Institution	Percent of Ph.D.s†	Institution	Percent of Ph.D.s†
New Jersey Institute of Technology	87.1	University of Medicine and Dentistry of New Jersey	52.4
Clarkson University	77.3	Michigan Technological University	51.0
North Dakota State University-Main Campus	74.2	Carnegie Mellon University	50.5
Polytechnic University	69.2	Medical College of Georgia	50.0
Rockefeller University	62.5	University of Texas Health Science-San Antonio	50.0
Illinois Institute of Technology	58.7	SUNY at Stony Brook	46.6
University of Missouri-Rolla	57.4	Colorado School of Mines	45.9
Florida Institute of Technology	55.0	University of Texas Health Science Center	45.5
Drexel University	53.8	Iowa State University	45.3
University of Maryland-Baltimore County	52.7	Northeastern University	43.7

* The ranking excludes institutions with fewer than 10 non-U.S. citizen Ph.D.s.

†The percent column is based on the number of non-U.S. citizens as a percentage of the total Ph.D.s for that institution.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 15. Parental educational attainment of 1998 doctorate recipients

	Percent High School or Less	Percent College	Percent Advanced Degree
Total			
Father's Education	28.3	31.4	40.3
Mother's Education	37.1	35.0	27.9
Sex			
Male			
Father's Education	29.0	31.5	39.4
Mother's Education	39.2	34.1	26.7
Female			
Father's Education	27.5	31.6	40.9
Mother's Education	34.5	36.6	28.9
Race/Ethnicity (U.S. citizens only)			
Asian*			
Father's Education	31.9	40.4	27.7
Mother's Education	50.1	34.0	15.9
Black			
Father's Education	53.1	22.5	24.3
Mother's Education	51.9	26.9	21.3
Hispanic			
Father's Education	40.9	26.0	33.1
Mother's Education	52.6	28.6	18.9
American Indian†			
Father's Education	38.6	31.7	29.6
Mother's Education	41.3	38.1	20.6
White			
Father's Education	27.0	32.6	40.3
Mother's Education	34.3	39.7	26.0
Citizenship			
U.S. Citizen			
Father's Education	27.9	32.2	39.9
Mother's Education	34.0	39.9	26.1
Non-U.S., Permanent Visa			
Father's Education	33.0	35.4	31.6
Mother's Education	48.5	31.7	19.8
Non-U.S., Temporary Visa			
Father's Education	34.8	36.3	28.9
Mother's Education	52.5	30.3	17.2
Broad Field of Study			
Physical Sciences‡			
Father's Education	23.4	33.3	43.3
Mother's Education	33.4	35.9	30.7
Engineering			
Father's Education	25.8	36.5	37.7
Mother's Education	40.0	36.0	24.1
Life Sciences			
Father's Education	27.1	32.4	40.5
Mother's Education	36.3	36.6	27.1
Social Sciences			
Father's Education	24.2	30.1	45.7
Mother's Education	32.1	35.4	32.5
Humanities			
Father's Education	24.0	29.5	46.5
Mother's Education	31.7	36.4	31.9
Education			
Father's Education	43.8	27.1	29.1
Mother's Education	48.1	30.2	21.6
Professional/Other Fields			
Father's Education	32.0	30.4	37.6
Mother's Education	40.8	32.8	26.4

*Includes Pacific Islander.

†Includes Alaskan Native.

‡Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 16. Median number of years from baccalaureate to doctorate award by broad field for selected years, 1973-1998

Field	1973	1978	1983	1988	1993	1998
All Fields						
Total	8.5	9.0	9.9	10.6	10.7	10.4
Registered	6.0	6.2	6.7	7.0	7.2	7.3
Physical Sciences*						
Total	6.9	7.0	7.2	7.6	8.4	8.0
Registered	5.9	5.9	6.0	6.2	6.6	6.7
Engineering						
Total	7.9	7.6	8.0	8.1	9.0	8.9
Registered	5.8	5.7	5.9	6.0	6.4	6.7
Life Sciences						
Total	7.2	7.4	8.0	9.0	9.5	9.1
Registered	5.7	5.9	6.2	6.7	7.0	7.0
Social Sciences						
Total	7.8	8.2	9.5	10.6	10.6	9.9
Registered	5.9	6.1	7.0	7.5	7.6	7.5
Humanities						
Total	9.2	10.2	11.2	12.2	12.0	11.6
Registered	6.5	7.4	8.0	8.5	8.3	8.7
Education						
Total	12.6	12.9	14.1	17.0	19.3	20.0
Registered	6.2	6.6	7.5	8.0	8.3	8.4
Professional/Other						
Total	10.0	10.9	12.1	13.0	13.3	13.7
Registered	6.0	6.2	7.0	7.5	7.6	8.0

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 17. Median number of years from baccalaureate to doctorate award by demographic group and broad field, 1998

	All Fields	Physical Sciences*	Engineering	Life Sciences	Social Sciences	Humanities	Education	Prof./ Other
Elapsed Time from Baccalaureate (years)								
All Ph.D.s	10.4	8.0	8.9	9.1	9.9	11.6	20.0	13.7
Sex								
Male	9.9	8.0	9.0	9.0	10.0	11.3	18.9	13.1
Female	11.3	7.8	8.0	9.4	9.6	11.9	20.6	14.6
Citizenship								
U.S. Citizen	10.7	7.2	8.0	8.9	9.6	11.7	21.0	15.3
Non-U.S., Permanent Visa	11.4	11.2	11.0	10.9	11.4	12.2	14.3	12.8
Non-U.S., Temporary Visa	9.5	8.9	9.1	9.4	10.0	10.4	12.5	10.7
Unknown	11.2	9.8	10.9	11.2	11.5	12.0	16.2	11.5
Race/Ethnicity (U.S. citizens only)								
Asian†	8.2	7.0	7.6	8.0	8.4	9.5	16.0	12.0
Black	14.0	7.9	8.5	9.3	10.5	11.1	21.0	17.8
Hispanic	11.0	8.0	8.0	9.6	9.8	11.0	18.9	17.2
American Indian‡	11.3	7.5	7.0	7.7	10.0	12.0	16.3	10.0
White	10.7	7.1	8.0	8.9	9.6	11.9	21.0	15.3
Registered Time from Baccalaureate (years)								
All Ph.D.s	7.3	6.7	6.7	7.0	7.5	8.7	8.4	8.0
Sex								
Male	7.2	6.8	6.7	7.0	7.6	8.3	8.4	7.9
Female	7.6	6.5	6.5	7.0	7.4	9.0	8.4	8.0
Citizenship								
U.S. Citizen	7.5	6.5	6.6	7.0	7.4	8.8	8.6	8.0
Non-U.S., Permanent Visa	7.9	7.8	7.3	7.5	8.3	9.0	8.3	8.4
Non-U.S., Temporary Visa	7.0	6.9	6.7	7.0	7.5	8.0	7.0	7.4
Unknown	7.3	7.2	7.1	7.1	8.9	9.9	8.8	7.5
Race/Ethnicity (U.S. citizens only)								
Asian†	7.0	6.6	6.6	7.0	6.9	8.1	8.2	7.3
Black	7.9	6.3	7.0	7.0	8.0	8.0	8.0	8.4
Hispanic	7.7	6.6	6.2	7.5	7.4	8.4	9.0	7.3
American Indian‡	7.5	7.3	6.4	6.1	8.0	8.1	8.3	8.1
White	7.5	6.5	6.5	7.0	7.4	8.9	8.7	8.0

*Includes mathematics and computer sciences.

†Includes Pacific Islander.

‡Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 18. Distribution of 1998 doctorate recipients by age at doctorate (in years)

	Age Grouping					
	21-25	26-30	31-35	36-40	41-45	Over 45
Total	60	9,890	9,859	5,143	3,265	5,218
Broad Field						
Physical Sciences*	33	2,640	1,620	596	252	152
Engineering	12	1,929	1,647	645	193	129
Life Sciences	7	2,408	2,280	957	566	513
Social Sciences	3	1,688	1,706	857	478	727
Humanities	2	710	1,468	868	508	695
Education	0	288	680	810	992	2,557
Professional/Other Fields	3	227	458	410	276	445
Sex						
Male	45	6,133	6,284	3,157	1,669	1,976
Female	15	3,756	3,575	1,986	1,596	3,242
Citizenship						
U.S. Citizen	25	7,118	5,619	3,415	2,570	4,771
Non-U.S., Permanent Visa	9	408	876	452	248	148
Non-U.S., Temporary Visa	24	2,214	3,022	1,102	379	200
Unknown	2	150	342	174	68	99
Race/Ethnicity (U.S. citizens only)						
Asian†	4	472	238	115	57	84
Black	0	225	230	182	181	396
Hispanic	0	233	244	172	128	191
American Indian‡	0	31	47	26	23	34
White	20	6,022	4,735	2,832	2,121	3,979

*Includes mathematics and computer sciences.

†Includes Pacific Islander.

‡Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 19. Primary sources of financial support for doctorate recipients by broad field and demographic group, 1998 (includes only Ph.D.s who reported primary source of support)

Primary Source of Support		U.S. Citizens by Race/Ethnicity										
		All Ph.D.s	Male	Female	U.S. Citizen	Permanent Visa	Temporary Visa	Asian*	Black	Hispanic	American Indian†	White
All Fields	N	42,683	24,653	17,856	28,218	2,696	8,642	1,168	1,467	1,190	189	23,338
Teaching Assistantships	%	17.8	18.2	17.3	16.1	22.8	21.4	12.9	6.8	12.2	13.8	17.0
Research Assistantships/Traineeships	%	26.5	31.7	19.3	20.5	37.7	42.1	32.2	8.7	13.1	15.6	21.1
Fellowships/Dissertation Grants	%	16.3	16.0	16.7	17.4	14.2	13.6	26.4	30.8	28.3	24.0	15.4
Own Resources	%	32.2	25.8	41.1	40.1	20.2	11.3	24.2	46.1	40.1	41.9	40.6
Foreign Government	%	2.5	3.4	1.4	0.1	2.1	9.7	0.3		1.1	0.6	0.1
Employer	%	3.1	3.5	2.7	4.0	1.7	1.1	2.0	5.7	3.1	3.0	4.0
Other	%	1.6	1.5	1.6	1.8	1.3	0.9	2.0	1.9	2.1	1.2	1.8
Physical Sciences‡	N	6,739	5,104	1,600	3,660	551	2,041	190	82	102	19	3,139
Teaching Assistantships	%	27.1	26.5	29.4	22.9	30.9	33.4	21.7	10.5	15.5	16.7	23.6
Research Assistantships/Traineeships	%	43.6	44.5	40.6	41.2	48.3	46.7	46.1	23.7	28.9	38.9	41.9
Fellowships/Dissertation Grants	%	13.9	13.4	15.7	17.8	7.4	9.2	18.9	50.0	34.0	16.7	16.2
Own Resources	%	10.5	10.4	10.7	14.4	10.7	3.7	11.1	10.5	15.5	27.8	14.6
Foreign Government	%	2.3	2.5	1.5	0.1	0.8	6.1	0.0	0.0	3.1	0.0	0.0
Employer	%	1.9	2.0	1.5	2.7	1.6	0.6	1.1	3.9	2.1	0.0	2.8
Other	%	0.7	0.7	0.6	0.9	0.4	0.4	1.1	1.3	1.0	0.0	0.7
Engineering	N	5,919	5,108	769	2,543	478	2,392	244	76	100	13	2,028
Teaching Assistantships	%	9.5	9.4	10.1	6.8	13.5	11.1	7.7	7.1	8.6	0.0	6.5
Research Assistantships/Traineeships	%	52.2	52.1	52.5	44.0	57.2	60.3	53.8	14.3	32.3	33.3	44.5
Fellowships/Dissertation Grants	%	13.4	12.3	20.7	21.1	6.4	6.9	18.8	55.7	31.2	41.7	19.6
Own Resources	%	13.6	14.3	8.7	17.5	13.0	9.6	12.0	12.9	15.1	16.7	18.5
Foreign Government	%	5.2	5.3	4.4	0.1	4.8	10.0	0.4	0.0	2.2	0.0	0.0
Employer	%	4.9	5.3	2.5	8.3	3.4	1.8	4.7	8.6	9.7	8.3	8.7
Other	%	1.3	1.3	1.2	2.1	1.6	0.3	2.6	1.4	1.1	0.0	2.3
Life Sciences	N	8,540	4,640	3,876	5,288	732	1,946	291	163	212	25	4,462
Teaching Assistantships	%	11.9	12.5	11.2	11.1	12.6	13.7	5.9	4.5	6.9	4.5	12.0
Research Assistantships/Traineeships	%	40.4	43.4	36.8	36.0	52.9	48.0	39.9	23.4	26.2	45.5	36.6
Fellowships/Dissertation Grants	%	22.9	22.4	23.5	24.8	21.0	18.8	37.4	46.1	38.6	40.9	22.5
Own Resources	%	18.3	14.3	23.0	23.7	11.0	6.6	13.9	22.1	22.8	0.0	24.5
Foreign Government	%	3.2	4.2	2.1	0.3	1.3	11.2	0.4	0.0	3.0	0.0	0.1
Employer	%	1.8	1.8	1.9	2.5	0.4	0.6	1.1	3.2	1.0	9.1	2.5
Other	%	1.4	1.3	1.6	1.6	0.7	1.1	1.5	0.6	1.5	0.0	1.7
Social Sciences	N	7,075	3,206	3,838	5,312	299	912	172	277	293	42	4,346
Teaching Assistantships	%	20.4	23.0	18.2	18.4	30.0	28.5	20.5	9.9	12.3	18.8	19.2
Research Assistantships/Traineeships	%	14.0	13.6	14.4	13.8	12.6	15.4	13.7	8.7	7.4	9.4	14.7
Fellowships/Dissertation Grants	%	17.4	19.0	16.0	16.6	17.0	21.5	26.7	38.7	29.9	25.0	14.0
Own Resources	%	43.0	37.3	47.9	48.1	33.7	19.0	38.5	39.9	45.1	43.8	49.2
Foreign Government	%	2.0	3.4	0.8	0.1	2.2	12.2	0.0	0.0	0.4	3.1	0.1
Employer	%	1.7	1.9	1.4	1.8	1.9	1.1	0.0	2.0	3.3	0.0	1.7
Other	%	1.4	1.7	1.2	1.1	2.6	2.5	0.6	0.8	1.6	0.0	1.2
Humanities	N	5,499	2,814	2,675	4,241	338	537	112	150	157	22	3,660
Teaching Assistantships	%	32.4	31.6	33.1	31.0	41.3	37.0	18.1	14.7	36.1	31.8	31.9
Research Assistantships/Traineeships	%	1.7	1.9	1.4	1.5	1.9	2.8	1.0	2.1	0.7	0.0	1.6
Fellowships/Dissertation Grants	%	23.3	22.9	23.6	23.0	20.5	27.0	40.0	46.9	34.7	22.7	20.9
Own Resources	%	38.7	38.9	38.5	41.4	33.0	23.4	38.1	32.9	25.9	45.5	42.4
Foreign Government	%	1.1	1.2	1.1	0.1	1.3	8.4	0.0	0.0	0.0	0.0	0.1
Employer	%	1.4	1.9	0.9	1.6	0.3	0.6	1.0	1.4	1.4	0.0	1.6
Other	%	1.4	1.6	1.3	1.5	1.6	0.8	1.9	2.1	1.4	0.0	1.5
Education	N	6,559	2,422	4,120	5,529	171	424	102	619	277	50	4,334
Teaching Assistantships	%	7.4	7.0	7.7	6.3	18.4	16.2	8.1	3.6	3.2	2.3	6.8
Research Assistantships/Traineeships	%	5.7	5.6	5.8	4.7	11.2	15.9	4.7	3.4	2.4	4.5	5.0
Fellowships/Dissertation Grants	%	6.6	6.7	6.5	5.8	10.5	13.7	11.6	13.6	13.0	20.5	4.0
Own Resources	%	69.0	66.9	70.3	72.3	48.0	38.2	65.1	68.1	74.1	68.2	72.9
Foreign Government	%	1.1	1.7	0.6	0.0	4.6	11.9	0.0	0.0	0.0	0.0	0.0
Employer	%	7.2	9.0	6.2	7.8	3.9	2.0	5.8	8.9	3.2	2.3	8.1
Other	%	3.0	3.2	2.9	3.1	3.3	2.0	4.7	2.4	4.0	2.3	3.1
Professional/Other Fields	N	2,332	1,346	973	1,644	127	389	57	100	49	18	1,369
Teaching Assistantships	%	19.4	20.0	18.7	17.1	19.8	27.3	16.0	5.3	6.5	29.4	18.4
Research Assistantships/Traineeships	%	12.0	12.3	11.6	9.3	17.2	21.2	12.0	9.6	10.9	0.0	9.3
Fellowships/Dissertation Grants	%	12.6	12.5	12.7	11.6	15.5	15.7	26.0	27.7	17.4	5.9	9.6
Own Resources	%	46.9	44.4	50.3	54.1	40.5	20.9	38.0	45.7	56.5	52.9	55.2
Foreign Government	%	2.5	3.3	1.4	0.1	1.7	12.1	2.0	0.0	0.0	0.0	0.1
Employer	%	4.5	5.3	3.6	5.4	4.3	1.1	0.0	7.4	4.3	5.9	5.5
Other	%	2.1	2.2	1.8	2.3	0.9	1.7	6.0	4.3	4.3	5.9	2.0

Note: Table includes 174 Ph.D.s whose sex was not reported.

*Includes Pacific Islander.

†Includes Alaskan Native.

‡Includes mathematics and computer sciences

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 20. Postgraduation status of doctorate recipients by broad field for selected years, 1978-1998

		All Fields	Physical Sciences*	Engi- neering	Life Sciences	Social Sciences	Human- ities	Educa- tion	Prof./ Other
Total									
1978	N	30,875	4,193	2,423	5,041	6,038	4,231	7,194	1,755
1983	N	31,281	4,425	2,781	5,553	6,096	3,500	7,174	1,752
1989	N	33,500	5,309	4,187	6,164	5,781	3,555	6,362	2,142
1993	N	39,801	6,496	5,698	7,395	6,545	4,482	6,689	2,496
1998	N	42,683	6,739	5,919	8,540	7,075	5,499	6,559	2,352
Total Responses to Postgraduation Status									
1978	N	28,582	3,936	2,222	4,716	5,522	3,893	6,669	1,624
1983	N	28,719	4,080	2,479	5,136	5,537	3,197	6,681	1,609
1988	N	30,224	4,799	3,707	5,626	5,147	3,254	5,798	1,893
1993	N	36,546	5,947	5,165	6,877	6,009	4,159	6,116	2,273
1998	N	38,114	6,095	5,317	7,739	6,158	4,991	5,761	2,053
Definite Commitments for Employment or Study									
1978	%	72.9	76.0	76.0	76.5	70.9	61.5	73.0	85.1
1983	%	73.8	77.2	74.6	76.2	69.9	64.7	74.5	84.4
1988	%	73.5	76.3	67.3	76.4	71.7	64.9	75.7	82.2
1993	%	67.0	66.0	55.7	73.4	65.9	59.9	73.0	75.6
1998	%	69.6	71.5	69.7	71.8	67.9	58.8	73.5	76.3
Seeking Employment or Study									
1978	%	27.1	24.0	24.0	23.5	29.1	38.5	27.0	14.9
1983	%	26.2	22.8	25.4	23.8	30.1	35.3	25.5	15.6
1988	%	26.5	23.7	32.7	23.6	28.3	35.1	24.3	17.8
1993	%	33.0	34.0	44.3	26.6	34.1	40.1	27.0	24.4
1998	%	30.4	28.5	30.3	28.2	32.1	41.2	26.5	23.7

NOTE: Percentages are based on the number of Ph.D.s who reported their postgraduation status (definite or seeking), regardless of plans (employment or study). See technical notes in appendix C for rates of nonresponse to the applicable questions and for further explanation of postgraduation plans.

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 21. Postgraduation status of doctorate recipients by demographic group for selected years, 1978-1998

		Total	Men	Women	U.S. Citizen	Perm. Visa	Temp. Visa	U.S. Citizens & Permanent Residents				
								Asian*	Black	Hispanic	American Indian†	White
Total												
1978	N	30,875	22,553	8,322	25,291	1,344	3,421	1,032	1,104	553	60	22,342
1983	N	31,281	20,748	10,533	24,360	1,274	4,498	1,042	1,005	608	82	22,251
1988	N	33,500	21,680	11,819	23,290	1,622	6,195	1,235	970	693	94	21,460
1993	N	39,801	24,382	15,122	26,449	2,259	9,932	2,017	1,280	973	120	24,052
1998	N	42,683	24,653	17,856	28,218	2,696	8,642	2,720	1,586	1,311	189	24,153
Total Responses to Postgraduation Status												
1978	N	28,582	20,941	7,641	24,109	1,261	3,167	977	1,027	516	56	21,659
1983	N	28,719	18,992	9,727	23,373	1,181	4,098	975	965	575	79	21,573
1988	N	30,224	19,429	10,795	22,843	1,527	5,795	1,161	939	676	92	21,101
1993	N	36,546	22,533	14,007	25,284	2,074	9,141	1,850	1,183	918	113	23,130
1998	N	38,114	22,104	15,975	26,640	2,538	8,164	2,571	1,473	1,201	173	23,185
Definite Commitments for Employment or Study												
1978	%	72.9	75.2	66.7	73.7	61.9	71.5	64.0	69.3	71.1	73.2	73.8
1983	%	73.8	75.8	69.8	74.9	64.2	70.4	66.3	69.2	73.0	57.0	75.1
1988	%	73.5	74.4	71.7	75.8	59.8	67.7	66.5	68.6	72.0	69.6	75.7
1993	%	67.0	66.2	68.3	71.5	53.3	57.8	59.2	65.2	68.2	67.3	71.4
1998	%	69.6	70.5	68.4	71.7	62.5	66.0	65.8	65.2	69.9	62.4	72.1
Seeking Employment or Study												
1978	%	27.1	24.8	33.3	26.3	38.1	28.5	36.0	30.7	28.9	26.8	26.2
1983	%	26.2	24.2	30.2	25.1	35.8	29.6	33.7	30.8	27.0	43.0	24.9
1988	%	26.5	25.6	28.3	24.2	40.2	32.3	33.5	31.4	28.0	30.4	24.3
1993	%	33.0	33.8	31.7	28.5	46.7	42.2	40.8	34.8	31.8	32.7	28.6
1998	%	30.4	29.5	31.6	28.3	37.5	34.0	34.2	34.8	30.1	37.6	27.9

NOTE: Percentages are based on the number of Ph.D.s who reported their postgraduation status (definite or seeking), regardless of plans (employment or study). See technical notes in Appendix C for rates of nonresponse to the applicable questions and for further explanation of postgraduation plans

*Includes Pacific Islander.

†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 22. Postgraduation commitments of doctorate recipients by type of plans and broad field for selected years, 1978-1998

		All Fields	Physical Sciences*	Engineering	Life Sciences	Social Sciences	Humanities	Education	Prof./ Other
All Definite Commitments									
1978	N	20,849	2,992	1,688	3,610	3,914	2,393	4,870	1,382
1983	N	21,186	3,150	1,850	3,913	3,869	2,068	4,978	1,358
1988	N	22,201	3,661	2,495	4,296	3,691	2,112	4,390	1,556
1993	N	24,481	3,925	2,876	5,046	3,960	2,491	4,464	1,719
1998	N	26,540	4,360	3,708	5,553	4,183	2,933	4,236	1,567
Definite Commitments with Response to Type of Plans									
1978	N	20,697	2,981	1,680	3,591	3,889	2,370	4,814	1,372
1983	N	21,139	3,144	1,844	3,909	3,862	2,062	4,966	1,352
1988	N	22,037	3,648	2,484	4,285	3,660	2,088	4,328	1,544
1993	N	24,363	3,917	2,867	5,034	3,941	2,465	4,429	1,710
1998	N	25,980	4,312	3,655	5,483	4,100	2,843	4,062	1,525
Employment									
1978	%	80.3	60.4	84.8	47.3	86.9	95.1	97.7	98.4
1983	%	79.3	61.9	87.5	44.8	86.1	95.3	97.4	97.2
1988	%	73.5	51.3	80.0	39.3	84.1	92.8	95.5	97.4
1993	%	71.0	50.1	74.7	35.8	79.9	92.9	96.9	97.1
1998	%	70.9	54.0	80.2	38.8	75.2	91.3	95.5	95.6
Study									
1978	%	19.7	39.6	15.2	52.7	13.1	4.9	2.3	1.6
1983	%	20.7	38.1	12.5	55.2	13.9	4.7	2.6	2.8
1988	%	26.5	48.7	20.0	60.7	15.9	7.2	4.5	2.6
1993	%	29.0	49.9	25.3	64.2	20.1	7.1	3.1	2.9
1998	%	29.1	46.0	19.8	61.2	24.8	8.7	4.5	4.4

NOTE: Only Ph.D.s with definite commitments are included. "All Definite Commitments" includes recipients who reported definite commitments but not type of plans (employment or study). Percentages are based on the number of Ph.D.s who reported a definite commitment and a type of plan. See technical notes in appendix C for rates of nonresponse to the applicable survey questions and for further explanation of postgraduation plans.

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 23. Postgraduation commitments of doctorate recipients by type of plans and demographic group for selected years, 1978-1998

		U.S. Citizens & Permanent Residents										
		Total	Men	Women	U.S. Citizen	Perm. Visa	Temp. Visa	Asian*	Black	Hispanic	American Indian†	White
All Definite Commitments												
1978	N	20,849	15,750	5,099	17,772	781	2,265	625	712	367	41	15,981
1983	N	21,186	14,398	6,788	17,496	758	2,885	646	668	420	45	16,192
1988	N	22,201	14,463	7,738	17,325	913	3,925	772	644	487	64	15,984
1993	N	24,481	14,919	9,560	18,067	1,105	5,283	1,096	771	626	76	16,511
1998	N	26,540	15,586	10,932	19,098	1,585	5,388	1,693	961	840	108	16,721
Definite Commitments with Responses to Type of Plans												
1978	N	20,697	15,648	5,049	17,667	775	2,227	617	700	366	41	15,899
1983	N	21,139	14,364	6,775	17,468	757	2,867	644	665	420	45	16,172
1988	N	22,037	14,365	7,672	17,207	904	3,889	765	638	481	63	15,880
1993	N	24,363	14,858	9,503	17,990	1,096	5,251	1,088	765	624	76	16,442
1998	N	25,980	15,303	10,658	18,708	1,552	5,279	1,670	914	819	105	16,403
Employment												
1978	%	80.3	79.2	83.6	80.9	78.1	75.8	71.2	93.9	89.3	90.2	80.6
1983	%	79.3	77.9	82.1	79.6	80.2	77.1	73.6	92.3	86.4	97.8	79.2
1988	%	73.5	71.6	77.0	75.7	71.6	64.4	70.1	87.6	73.4	82.5	75.4
1993	%	71.0	68.4	75.1	74.3	65.8	60.7	60.9	83.5	73.9	85.5	74.3
1998	%	70.9	69.6	72.7	74.5	62.8	60.5	61.6	83.2	75.0	81.9	74.2
Study												
1978	%	19.7	20.8	16.4	19.1	21.9	24.2	28.8	6.1	10.7	9.8	19.4
1983	%	20.7	22.1	17.9	20.4	19.8	22.9	26.4	7.7	13.6	2.2	20.8
1988	%	26.5	28.4	23.0	24.3	28.4	35.6	29.9	12.4	26.6	17.5	24.6
1993	%	29.0	31.6	24.9	25.7	34.2	39.3	39.1	16.5	26.1	14.5	25.7
1998	%	29.1	30.4	27.3	25.5	37.2	39.5	38.4	16.8	25.0	18.1	25.8

NOTE: Only Ph.D.s with definite commitments are included. "All Definite Commitments" includes recipients who reported definite commitments but not type of plans (employment or study). Percentages are based on the number of Ph.D.s who reported a definite commitment and a type of plan. See technical notes in Appendix C for rates of nonresponse to the applicable survey questions and for further explanation of postgraduation plans.

*Asian includes Pacific Islander.

†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 24. Postdoctoral location of non-U.S. citizen doctorate recipients with postgraduation commitments by major field and visa status, 1998

Field	Number of Responses	Permanent Visa				Temporary Visa				
		U.S. Location		Foreign Location		U.S. Location		Foreign Location		
		Employ. (%)	Study (%)	Employ. (%)	Study (%)	Employ. (%)	Study (%)	Employ. (%)	Study (%)	
All Fields	1,538	57.1	35.2	5.7	2.0	5,239	36.6	33.4	24.0	6.0
Physical Sciences*	334	59.3	35.0	1.8	3.9	1,304	34.6	46.4	11.4	7.6
Physics & Astronomy	84	47.6	42.9	1.2	8.3	1,436	27.8	52.8	6.0	13.4
Chemistry	103	54.4	44.7	1.0	0.0	1,213	20.6	67.2	8.5	3.7
Earth, Atmos., & Marine Sci.	39	51.3	41.0	5.1	2.6	546	33.1	42.5	14.2	10.2
Mathematics	50	60.0	28.0	2.0	10.0	270	43.5	29.0	19.4	8.1
Computer Sciences	58	89.7	8.6	1.7	0.0	217	65.1	16.7	15.1	3.1
Engineering	290	81.7	14.5	3.1	0.7	253	54.0	21.7	21.0	3.3
Life Sciences	456	25.0	70.4	2.9	1.8	335	12.4	59.4	20.8	7.4
Biological Sciences	360	17.8	79.7	0.6	1.9	402	9.1	73.9	9.6	7.4
Health Sciences	49	69.4	16.3	14.3	0.0	127	26.0	25.3	42.5	6.2
Agricultural Sciences	47	34.0	55.3	8.5	2.1	248	15.2	32.8	43.8	8.2
Social Sciences†	148	57.4	25.7	14.9	2.0	192	42.5	11.0	40.5	6.0
Psychology	52	48.1	42.3	9.6	0.0	811	33.3	28.9	25.6	12.2
Economics	44	65.9	11.4	20.5	2.3	146	51.4	3.9	41.8	2.8
Political Sci./International Rel.	9	44.4	44.4	11.1	0.0	256	37.0	13.0	41.3	8.7
Sociology	7	57.1	0.0	28.6	14.3	90	18.2	18.2	57.6	6.1
Humanities	150	79.3	8.0	10.7	2.0	282	42.2	9.3	39.6	8.9
Education	80	73.8	12.5	12.5	1.3	46	24.9	9.2	59.0	6.9
Professional/Other†	80	82.5	2.5	13.8	1.3	33	54.9	4.0	39.5	1.6
Business & Management	51	86.3	2.0	11.8	0.0	183	62.8	3.8	31.7	1.6

NOTE: Only non-U.S. citizen Ph.D.s with definite commitments are included. Percentages are based on the number of Ph.D.s who reported a definite commitment and a location. See technical notes in appendix C for rates of nonresponse to the applicable survey questions and for further explanation of postgraduation plans.

*Includes mathematics and computer sciences.

†Includes other fields not shown.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 25. Postdoctoral location of non-U.S. citizen doctorate recipients with postgraduation commitments by visa status for selected years, 1978-1998

		All Non-U.S. Citizen	Permanent Visa	Temporary Visa
All Definite Commitments				
1978	N	3,046	781	2,265
1983	N	3,643	758	2,885
1988	N	4,838	913	3,925
1993	N	6,388	1,105	5,283
1998	N	6,973	1,585	5,388
Definite Commitments with Response to Location				
1978	N	2,892	744	2,148
1983	N	3,375	696	2,679
1988	N	4,372	834	3,538
1993	N	6,311	1,100	5,211
1998	N	6,907	1,564	5,343
U.S. Location				
1978	%	52.4	92.1	38.6
1983	%	50.7	91.4	40.2
1988	%	61.0	85.0	55.3
1993	%	60.4	85.3	55.2
1998	%	74.8	92.3	69.6
Foreign Location				
1978	%	47.6	7.9	61.4
1983	%	49.3	8.6	59.8
1988	%	39.0	15.0	44.7
1993	%	39.6	14.7	44.8
1998	%	25.2	7.7	30.4

NOTE: Only non-U.S. citizen Ph.D.s with definite commitments are included. "All Definite Commitments" includes recipients who reported definite commitments but not location (U.S. or foreign). Percentages are based on the number of Ph.D.s who reported a definite commitment and a location.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

TABLE 26. Employment sector of doctorate recipients with postgraduation commitments in the United States by demographic group for selected years, 1978-1998

		U.S. Citizens & Permanent Residents										
		Total	Male	Female	U.S. Citizen	Perm. Visa	Temp. Visa	Asian*	Black	Hispanic	Amer. Indian†	White
All Employment Commitments												
1978	N	14,07	10,30	3,764	13,54	528	427	400	597	304	36	12,159
1983	N	13,24	8,527	4,714	12,73	505	626	415	523	321	38	11,767
1988	N	12,53	7,543	4,996	12,02	514	926	453	491	316	43	11,069
1993	N	13,64	7,272	6,374	13,05	596	1,328	579	621	446	65	11,884
1998	N	14,46	7,677	6,780	13,57	884	1,920	958	746	582	84	11,864
Employment Commitments with Response to Sector												
1978	N	14,03	10,27	3,754	13,50	527	422	400	595	301	36	12,129
1983	N	13,22	8,520	4,707	12,72	505	623	414	522	319	38	11,758
1988	N	12,51	7,530	4,986	12,00	513	924	453	489	312	43	11,053
1993	N	13,45	7,193	6,257	12,86	585	1,302	573	604	435	64	11,724
1998	N	13,92	7,405	6,516	13,07	846	1,856	898	704	545	81	11,477
Academe												
1978	%	57.0	53.5	66.6	57.5	45.5	59.0	32.8	65.4	64.1	55.6	57.4
1983	%	51.3	48.2	56.9	51.4	46.5	63.6	37.7	49.4	55.2	55.3	51.6
1988	%	50.8	47.1	56.3	50.5	56.3	67.4	36.6	57.5	54.8	41.9	51.0
1993	%	52.4	47.4	58.2	52.2	57.3	53.6	44.2	57.1	59.3	57.8	52.3
1998	%	50.0	44.1	56.6	51.0	33.7	29.6	29.1	52.8	59.6	54.3	50.9
Industry/Self-Employed												
1978	%	14.8	17.8	6.5	13.7	43.1	31.8	51.8	4.7	9.6	11.1	14.1
1983	%	19.1	23.5	11.1	18.3	40.4	31.8	47.1	8.2	14.1	10.5	18.7
1988	%	19.5	24.4	12.0	19.0	31.0	28.2	44.4	8.6	15.4	11.6	19.0
1993	%	18.8	24.3	12.5	18.1	33.8	39.4	40.8	8.4	16.1	7.8	18.4
1998	%	24.5	32.5	15.4	22.5	54.4	65.5	55.7	13.4	14.9	17.3	23.2
Government												
1978	%	12.3	13.5	9.0	12.5	5.3	2.1	9.3	10.1	13.6	22.2	12.3
1983	%	11.2	12.3	9.2	11.4	5.0	1.9	8.7	14.6	13.8	13.2	11.1
1988	%	10.7	12.0	8.7	11.0	3.5	1.2	8.2	12.1	11.9	23.3	10.7
1993	%	9.9	11.5	8.2	10.2	3.6	2.2	8.0	9.6	12.0	17.2	9.9
1998	%	8.2	9.8	6.3	8.4	4.6	1.3	6.9	7.8	7.5	7.4	8.3
Other												
1978	%	15.9	15.1	18.0	16.3	6.1	7.1	6.3	19.8	12.6	11.1	16.2
1983	%	18.5	16.1	22.8	18.9	8.1	2.7	6.5	27.8	16.9	21.1	18.6
1988	%	19.1	16.5	23.1	19.5	9.2	3.1	10.8	21.9	17.9	23.3	19.4
1993	%	18.9	16.9	21.2	19.5	5.3	4.8	7.0	24.8	12.6	17.2	19.4
1998	%	17.4	13.6	21.8	18.1	7.3	3.6	8.4	26.0	18.0	21.0	17.6

*Includes Pacific Islander.

†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 27. Research doctorates by employment sector and Carnegie classification, 1998*

Research I							Research II		
Sector	Number of Ph.D.s	Percent of Research I	Percent of Sector	Number of Ph.D.s	Percent of Research II	Percent of Sector			
Academe	8,444	48.3	67.8	1,658	50.7	13.3			
Government	1,303	7.5	65.5	244	7.5	12.3			
Industry	5,583	31.9	72.1	841	25.7	10.9			
Other	2,150	12.3	51.9	525	16.1	12.7			

Doctoral I				Doctoral II		
Sector	Number of Ph.D.s	Percent of Doctoral I	Percent of Sector	Number of Ph.D.s	Percent of Doctoral II	Percent of Sector
Academe	1,395	46.1	11.2	525	38.6	4.2
Government	204	6.7	10.3	114	8.4	5.7
Industry	637	21.1	8.2	408	30.0	5.3
Other	790	26.1	19.1	313	23.0	7.5

Other			
Sector	Number of Ph.D.s	Percent of Other	Percent of Sector
Academe	425	35.6	3.4
Government	124	10.4	6.2
Industry	278	23.3	3.6
Other	368	30.8	8.9

* For overall totals (percents) by Carnegie classification, see Table 4.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 28. Doctorate recipients reporting postdoctoral plans to return to state of residence during high school, 1998 (by percent)

Place of High School	Broad Field of Doctorate							
	All Fields	Physical Sciences*	Engineering	Life Sciences	Social Sciences	Humanities	Education	Prof./Other Fields
Total Returning	28.9	20.2	24.9	25.2	27.8	22.7	46.6	28.0
Alabama	36.7	20.0	34.5	25.4	28.6	24.4	55.9	42.3
Alaska	15.9	~~~	0.0	11.1	7.1	0.0	~~~	~~~
Arizona	25.4	16.7	10.5	24.4	8.1	19.4	59.6	21.4
Arkansas	25.7	18.8	11.1	~~~	21.7	16.1	36.7	20.0
California	47.1	44.1	61.2	47.7	47.1	33.8	58.7	38.2
Colorado	21.4	23.8	22.0	17.0	25.0	16.9	30.0	16.0
Connecticut	14.7	9.2	11.1	21.8	8.7	7.2	27.0	~~~
Delaware	13.3	5.9	16.7	0.0	5.6	20.0	~~~	0.0
District of Columbia	24.1	0.0	0.0	21.4	~~~	15.4	~~~	~~~
Florida	30.6	19.0	25.8	24.2	25.7	33.0	48.3	31.9
Georgia	38.5	16.3	21.9	20.5	34.5	37.0	59.3	~~~
Hawaii	18.3	0.0	7.1	~~~	10.0	14.3	~~~	~~~
Idaho	15.5	7.1	0.0	13.6	~~~	13.3	~~~	0.0
Illinois	26.6	16.0	22.0	20.2	30.1	20.5	45.7	23.3
Indiana	19.8	8.8	7.8	19.6	6.9	14.5	48.1	13.8
Iowa	20.1	9.4	15.0	17.9	11.8	15.9	38.1	9.7
Kansas	19.0	11.5	0.0	20.8	12.5	11.4	40.7	13.6
Kentucky	28.6	14.8	11.1	32.7	32.6	26.2	48.2	21.7
Louisiana	36.1	25.6	~~~	25.4	31.9	30.2	53.3	~~~
Maine	12.6	14.3	9.1	8.0	14.3	10.0	15.8	~~~
Maryland	22.0	19.3	27.4	21.5	21.4	15.1	33.3	18.9
Massachusetts	26.7	21.2	30.0	26.4	30.8	18.0	37.3	28.6
Michigan	26.9	13.0	25.8	25.9	27.1	15.1	47.8	32.2
Minnesota	26.4	29.8	28.0	21.6	21.9	22.6	43.8	15.2
Mississippi	35.5	~~~	~~~	20.0	22.7	21.1	50.5	21.1
Missouri	29.7	16.7	22.5	18.8	21.7	19.3	54.7	~~~
Montana	15.3	8.3	0.0	7.7	12.5	0.0	~~~	0.0
Nebraska	25.8	8.0	17.6	19.6	29.5	15.6	40.3	~~~
Nevada	21.2	0.0	16.7	22.2	~~~	20.0	25.0	0.0
New Hampshire	8.4	4.8	11.8	6.3	3.0	6.9	~~~	16.7
New Jersey	20.3	20.5	17.9	11.4	18.7	16.5	33.3	30.8
New Mexico	23.2	16.1	29.4	13.2	14.3	11.5	59.3	20.0
New York	29.4	20.8	19.5	22.9	33.5	30.4	39.0	33.3
North Carolina	29.9	13.6	17.0	28.4	27.8	19.5	48.7	31.0
North Dakota	21.6	0.0	12.5	~~~	~~~	0.0	~~~	16.7
Ohio	27.1	17.2	28.2	21.1	23.1	20.6	46.8	22.5
Oklahoma	31.8	~~~	16.0	24.4	31.4	5.3	56.4	~~~
Oregon	20.0	8.9	18.2	13.2	15.6	13.2	51.4	~~~
Pennsylvania	27.8	19.3	17.1	25.1	23.2	23.5	49.2	24.8
Rhode Island	18.3	16.7	15.4	11.5	~~~	14.3	17.6	25.0
South Carolina	28.5	12.5	7.1	31.3	25.0	14.3	44.4	~~~
South Dakota	22.9	0.0	22.2	20.0	~~~	7.1	40.0	16.7
Tennessee	27.6	8.1	33.3	22.0	18.4	18.9	45.5	25.0
Texas	46.7	31.2	48.3	43.5	41.2	41.7	65.1	44.6
Utah	32.1	15.0	11.1	27.7	42.1	36.7	46.4	~~~
Vermont	7.8	8.3	0.0	0.0	11.1	0.0	21.4	0.0
Virginia	23.8	11.8	21.4	18.0	15.8	16.5	52.9	23.1
Washington	24.5	17.2	25.0	24.5	17.3	21.5	46.0	20.0
West Virginia	16.5	10.5	8.7	6.9	14.3	3.7	39.1	0.0
Wisconsin	20.7	9.6	13.3	25.2	22.7	21.1	30.1	18.8
Wyoming	5.6	0.0	0.0	9.1	0.0	0.0	7.1	25.0
Puerto Rico	50.3	55.0	~~~	35.5	60.5	~~~	59.5	~~~

*Includes mathematics and computer sciences.

~~~ Percentages greater than 25% based on frequencies less than 10 were considered spuriously high and have been suppressed.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 29. Cumulative debt related to education of doctorate recipients by broad field, 1998

| Cumulative Debt   | Group Total |      | Physical Sciences* |      | Engineering |      | Life Sciences |      | Social Sciences |      | Humanities |      | Education |      | Prof./Other |      |
|-------------------|-------------|------|--------------------|------|-------------|------|---------------|------|-----------------|------|------------|------|-----------|------|-------------|------|
|                   | N           | %    | N                  | %    | N           | %    | N             | %    | N               | %    | N          | %    | N         | %    | N           | %    |
| Total             | 38,147      | 100  | 6,094              | 100  | 5,340       | 100  | 7,748         | 100  | 6,145           | 100  | 4,991      | 100  | 5,775     | 100  | 2,054       | 100  |
| \$5,000 or less   | 3,817       | 10.0 | 663                | 10.9 | 511         | 9.6  | 884           | 11.4 | 531             | 8.6  | 525        | 10.5 | 528       | 9.1  | 175         | 8.5  |
| \$5,001-\$10,000  | 3,174       | 8.3  | 506                | 8.3  | 385         | 7.2  | 737           | 9.5  | 519             | 8.4  | 461        | 9.2  | 408       | 7.1  | 158         | 7.7  |
| \$10,001-\$15,000 | 2,533       | 6.6  | 390                | 6.4  | 278         | 5.2  | 559           | 7.2  | 437             | 7.1  | 439        | 8.8  | 311       | 5.4  | 119         | 5.8  |
| \$15,001-\$20,000 | 2,024       | 5.3  | 269                | 4.4  | 206         | 3.9  | 390           | 5.0  | 433             | 7.0  | 328        | 6.6  | 279       | 4.8  | 119         | 5.8  |
| \$20,001-\$25,000 | 1,512       | 4.0  | 196                | 3.2  | 123         | 2.3  | 256           | 3.3  | 352             | 5.7  | 277        | 5.5  | 219       | 3.8  | 89          | 4.3  |
| \$25,001-\$30,000 | 1,284       | 3.4  | 119                | 2.0  | 123         | 2.3  | 221           | 2.9  | 297             | 4.8  | 240        | 4.8  | 197       | 3.4  | 87          | 4.2  |
| \$30,000+         | 4,394       | 11.5 | 325                | 5.3  | 394         | 7.4  | 658           | 8.5  | 1,331           | 21.7 | 697        | 14.0 | 669       | 11.6 | 320         | 15.6 |
| No Debt           | 19,409      | 50.9 | 3,626              | 59.5 | 3,320       | 62.2 | 4,043         | 52.2 | 2,245           | 36.5 | 2,024      | 40.6 | 3,164     | 54.8 | 987         | 48.1 |

\*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 30. Cumulative debt related to education of doctorate recipients by demographic group, 1998

| Cumulative Debt   | Sex    |      |        |      | Citizenship  |      |            |      |            |      | Race /Ethnicity (U.S. citizens only) |      |       |      |          |      |                  |      |        |      |
|-------------------|--------|------|--------|------|--------------|------|------------|------|------------|------|--------------------------------------|------|-------|------|----------|------|------------------|------|--------|------|
|                   | Male   |      | Female |      | U.S. Citizen |      | Perm. Visa |      | Temp. Visa |      | Asian*                               |      | Black |      | Hispanic |      | American Indian† |      | White  |      |
|                   | N      | %    | N      | %    | N            | %    | N          | %    | N          | %    | N                                    | %    | N     | %    | N        | %    | N                | %    | N      | %    |
| \$5,000 or less   | 2,255  | 10.2 | 1,558  | 9.7  | 2,667        | 10.0 | 210        | 8.2  | 865        | 10.6 | 93                                   | 8.4  | 154   | 11.2 | 109      | 10.0 | 24               | 13.8 | 2,251  | 10.1 |
| \$5,001-\$10,000  | 1,895  | 8.6  | 1,276  | 8.0  | 2,500        | 9.4  | 160        | 6.3  | 453        | 5.5  | 115                                  | 10.4 | 127   | 9.3  | 105      | 9.6  | 15               | 8.6  | 2,084  | 9.3  |
| \$10,001-\$15,000 | 1,533  | 6.9  | 998    | 6.2  | 2,103        | 7.9  | 104        | 4.1  | 300        | 3.7  | 102                                  | 9.2  | 119   | 8.7  | 106      | 9.7  | 18               | 10.3 | 1,729  | 7.7  |
| \$15,001-\$20,000 | 1,145  | 5.2  | 879    | 5.5  | 1,724        | 6.5  | 73         | 2.9  | 199        | 2.4  | 68                                   | 6.1  | 93    | 6.8  | 79       | 7.2  | 14               | 8.0  | 1,433  | 6.4  |
| \$20,001-\$25,000 | 843    | 3.8  | 669    | 4.2  | 1,313        | 4.9  | 51         | 2.0  | 130        | 1.6  | 44                                   | 4.0  | 84    | 6.1  | 84       | 7.7  | 12               | 6.9  | 1,067  | 4.8  |
| \$25,001-\$30,000 | 668    | 3.0  | 615    | 3.8  | 1,107        | 4.2  | 45         | 1.8  | 121        | 1.5  | 36                                   | 3.3  | 82    | 6.0  | 64       | 5.9  | 11               | 6.3  | 899    | 4.0  |
| \$30,000+         | 2,391  | 10.8 | 2,002  | 12.5 | 3,556        | 13.3 | 169        | 6.6  | 616        | 7.5  | 126                                  | 11.4 | 306   | 22.4 | 198      | 18.1 | 28               | 16.1 | 2,819  | 12.6 |
| No Debt           | 11,400 | 51.5 | 7,986  | 50.0 | 11,683       | 43.8 | 1,741      | 68.2 | 5,481      | 67.1 | 523                                  | 47.2 | 404   | 29.5 | 347      | 31.8 | 52               | 29.9 | 10,111 | 45.2 |

\*Includes Pacific Islander.

† Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates



Table 2-1. Doctorate recipients with no indebtedness by sex, citizenship, and race/ethnicity, 1988 and 1998 (by percent)

|                                            | 1988 | 1998 |
|--------------------------------------------|------|------|
| <b>Total</b>                               | 52.9 | 50.9 |
| <b>Sex</b>                                 |      |      |
| Male                                       | 53.1 | 51.5 |
| Female                                     | 52.6 | 50.0 |
| <b>Citizenship</b>                         |      |      |
| U.S. Citizen                               | 45.3 | 43.8 |
| Non-U.S., Permanent Visa                   | 62.6 | 68.2 |
| Non-U.S., Temporary Visa                   | 79.3 | 67.1 |
| <b>Race/Ethnicity (U.S. citizens only)</b> |      |      |
| Asian*                                     | 47.0 | 47.2 |
| Black                                      | 39.5 | 29.5 |
| Hispanic                                   | 33.8 | 31.8 |
| American Indian†                           | 36.7 | 29.9 |
| White                                      | 45.9 | 45.2 |

\*Includes Pacific Islander.

†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-2. Indebtedness of U.S.-citizen doctorate recipients by sex, field of study, Carnegie class, and institution control type, 1998

|                             | Level of Indebtedness (%) |                  |                    |
|-----------------------------|---------------------------|------------------|--------------------|
|                             | None                      | \$15,000 or Less | More than \$15,000 |
| <b>Total, U.S. Citizens</b> | 43.8                      | 27.3             | 28.9               |
| <b>Sex</b>                  |                           |                  |                    |
| Male                        | 43.1                      | 28.8             | 28.0               |
| Female                      | 44.6                      | 25.6             | 29.8               |
| <b>Field</b>                |                           |                  |                    |
| Physical Sciences*          | 48.4                      | 31.3             | 20.3               |
| Engineering                 | 53.0                      | 27.5             | 19.5               |
| Life Sciences               | 43.6                      | 32.6             | 23.8               |
| Social Sciences             | 31.4                      | 24.6             | 44.1               |
| Humanities                  | 36.4                      | 29.2             | 34.4               |
| Education                   | 54.3                      | 21.6             | 24.1               |
| Professional/Other          | 44.2                      | 22.6             | 33.2               |
| <b>Carnegie Class</b>       |                           |                  |                    |
| Research I                  | 43.5                      | 29.5             | 27.1               |
| Research II                 | 41.2                      | 25.4             | 33.4               |
| Doctoral I                  | 46.6                      | 21.6             | 31.9               |
| Doctoral II                 | 49.4                      | 23.0             | 27.6               |
| Other                       | 43.1                      | 20.5             | 36.4               |
| <b>Type of Control</b>      |                           |                  |                    |
| Public                      | 44.3                      | 27.7             | 28.0               |
| Private                     | 42.8                      | 26.5             | 30.7               |

\* Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-3. Indebtedness of non-U.S. citizen doctorate recipients by sex, field of study, and Carnegie class, 1998

|                          | Level of Indebtedness (%) |                  |                    |
|--------------------------|---------------------------|------------------|--------------------|
|                          | None                      | \$15,000 or Less | More than \$15,000 |
| Total, Non-U.S. Citizens | 67.4                      | 19.5             | 13.1               |
| <b>Sex</b>               |                           |                  |                    |
| Male                     | 66.1                      | 20.2             | 13.7               |
| Female                   | 70.5                      | 17.7             | 11.7               |
| <b>Field</b>             |                           |                  |                    |
| Physical Sciences*       | 74.5                      | 17.8             | 7.7                |
| Engineering              | 70.2                      | 17.2             | 12.5               |
| Life Sciences            | 68.6                      | 19.6             | 11.8               |
| Social Sciences          | 56.7                      | 22.8             | 20.5               |
| Humanities               | 59.4                      | 25.3             | 15.3               |
| Education                | 58.0                      | 21.6             | 20.4               |
| Professional/Other       | 58.3                      | 20.5             | 21.1               |
| <b>Carnegie Class:</b>   |                           |                  |                    |
| Research I               | 68.3                      | 19.0             | 12.7               |
| Research II              | 64.3                      | 21.8             | 13.9               |
| Doctoral I               | 61.4                      | 20.4             | 18.2               |
| Doctoral II              | 70.6                      | 18.0             | 11.4               |
| Other                    | 66.2                      | 22.9             | 10.9               |

\*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-4. Indebtedness of U.S.-citizen doctorate recipients by primary source of support, 1998

| Primary Source of Support | Level of Indebtedness (%) |                  |                    |
|---------------------------|---------------------------|------------------|--------------------|
|                           | None                      | \$15,000 or less | More than \$15,000 |
| Teaching Assistantship    | 32.7                      | 32.3             | 35.0               |
| Research Assistantship    | 40.7                      | 34.6             | 24.8               |
| Fellowship or Grant       | 42.4                      | 33.8             | 23.8               |
| Own Resources             | 46.7                      | 20.1             | 33.8               |
| Employer                  | 71.9                      | 17.9             | 10.2               |
| Other                     | 63.2                      | 18.2             | 18.6               |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-5. Indebtedness of U.S.-citizen doctorate recipients by postdoctoral employment, 1998

| Postdoctoral Employment | Level of Indebtedness (%) |                  |                    |
|-------------------------|---------------------------|------------------|--------------------|
|                         | None                      | \$15,000 or less | More than \$15,000 |
| Academe                 | 41.7                      | 26.6             | 31.6               |
| Government              | 53.4                      | 21.9             | 24.7               |
| Industry                | 46.7                      | 26.7             | 26.6               |
| Other                   | 50.2                      | 24.0             | 25.9               |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-6. Indebtedness of U.S.-citizen doctorate recipients by degree and institution control, 1998

| Degree/Control            | Number | Level of Indebtedness (%) |                  |                    |
|---------------------------|--------|---------------------------|------------------|--------------------|
|                           |        | None                      | \$15,000 or less | More than \$15,000 |
| Public Bachelor's Degree  |        |                           |                  |                    |
| Public Ph.D.              | 11,617 | 44.8                      | 27.1             | 28.1               |
| Private Ph.D.             | 3,343  | 43.4                      | 24.6             | 32.0               |
| Private Bachelor's Degree |        |                           |                  |                    |
| Public Ph.D.              | 5,991  | 42.3                      | 29.5             | 29.2               |
| Private Ph.D.             | 4,339  | 41.9                      | 28.3             | 29.8               |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-7. Indebtedness of U.S.-citizen doctorate recipients by parental educational attainment, 1998

| Education Level      | Level of Indebtedness (%) |                  |                    |
|----------------------|---------------------------|------------------|--------------------|
|                      | None                      | \$15,000 or less | More than \$15,000 |
| Total, U.S. Citizens | 43.8                      | 27.3             | 28.9               |
| Father's Education   |                           |                  |                    |
| High school or less  | 44.5                      | 25.2             | 30.2               |
| Some college         | 41.4                      | 27.9             | 30.7               |
| Advanced degree      | 45.5                      | 28.3             | 26.2               |
| Mother's Education   |                           |                  |                    |
| High school or less  | 44.4                      | 25.8             | 29.8               |
| Some college         | 42.8                      | 28.3             | 28.9               |
| Advanced degree      | 44.8                      | 27.8             | 27.4               |
| Both Parents         |                           |                  |                    |
| High school or less  | 45.5                      | 25.0             | 29.5               |
| Some college         | 41.3                      | 28.4             | 30.3               |
| Advanced degree      | 46.2                      | 27.8             | 26.0               |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates.

Table 2-8. Indebtedness of U.S.-citizen doctorate recipients by marital status and number of dependents, 1998

|                                    | Number of Ph.D.s | Level of Indebtedness (%) |                  |                    |
|------------------------------------|------------------|---------------------------|------------------|--------------------|
|                                    |                  | None                      | \$15,000 or less | More than \$15,000 |
| <b>Marital Status</b>              |                  |                           |                  |                    |
| Married/marriage-like relationship | 16,617           | 47.5                      | 26.2             | 26.3               |
| Separated, widowed, or divorced    | 2,160            | 36.1                      | 25.0             | 38.9               |
| Never married                      | 7,623            | 38.1                      | 30.4             | 31.6               |
| <b>Number of Dependents</b>        |                  |                           |                  |                    |
| None                               | 14,439           | 42.1                      | 28.5             | 29.4               |
| One                                | 5,224            | 43.2                      | 27.4             | 29.3               |
| Two                                | 3,326            | 47.7                      | 26.7             | 25.6               |
| Three or More                      | 3,249            | 47.9                      | 23.1             | 29.0               |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

## **APPENDIXES**

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## APPENDIX A: The Seven Basic Tables, 1998

Appendix A includes the following seven tables:

- A-1 Number of Doctorate Recipients, by Sex and Subfield, 1998
- A-2 Number of Doctorate Recipients, by Citizenship, Race/Ethnicity, and Subfield, 1998
- A-3 Statistical Profile of Doctorate Recipients, by Major Field, 1998
- A-4 Statistical Profile of Doctorate Recipients, by Race/Ethnicity and Citizenship, 1998
- A-5 Sources of Graduate School Support for Doctorate Recipients, by Broad Field and Sex, 1998
- A-6 State of Doctoral Institution of Doctorate Recipients, by Broad Field and Sex, 1998
- A-7 Institutions Granting Doctorates, by Major Field, 1998

**TABLE A-1 and TABLE A-2:** Tables A-1 and A-2 display data for the most recent year by subfield of doctorate. Field groupings may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates (SED). The “general” field categories—e.g., “chemistry, general”—include individuals who either received the doctorate in the general subject area or did not indicate a particular specialty field. The “other” field categories—e.g., “chemistry, other”—include individuals whose specified doctoral discipline was not among the specialty fields listed.

Table A-1 presents data by doctoral specialty and sex. Table A-2 displays doctoral specialty by citizenship and race/ethnicity. For a detailed description of the racial/ethnic variable, see the explanatory note for Table A-4.

**TABLE A-3:** Table A-3 is composed of three 2-page tables. The first table (A-3a) includes data on *all* research doctorate recipients from the most recent year; the other two tables (A-3b and A-3c) present the same data by sex. Field groupings may differ from those in reports published by Federal sponsors of the SED. Terms requiring definition are as follows:

— *Percentage with Master’s*: The percentage of doctorate recipients in a field who received a master’s degree in any field before earning the doctorate.

— *Median Age at Doctorate*: One-half received the doctorate at or before this age. A recipient’s age is obtained by subtracting the month/year of birth from the month/year of doctorate. (See note on next page.)

— *Median Time Lapse*: “Total Time” refers to the total calendar time elapsed between the month/year of baccalaureate and the month/year of doctorate. “Registered Time” refers to the actual time in attendance at colleges and universities between receipt of the baccalaureate and the doctorate.

*NOTE about medians*: The method of computing medians has been revised. Beginning with Summary Report 1994, *months* (of birth, baccalaureate, and doctorate) are included in the calculations; medians presented in earlier reports were based only on years. Some medians would be the same regardless of the method of computation, but the new method generally computes slightly different results than are obtained by the old method. While variation is small (usually one or two decimal places), the reader should consider these differences when comparing medians presented in this report with those in earlier reports.

— *Postgraduation Plans*: Each year’s doctorate recipients provide information on post-graduation employment or study plans in response to items B1 through B9 on the survey form. Since the questionnaire is filled out around the time the doctorate is awarded, a recipient’s plans are subject to change. However, comparisons with the longitudinal Survey of Doctorate Recipients (SDR) have shown SED data to be a reasonable indicator of actual employment status in the year following the doctorate, although results vary by sector. (The SDR is a follow-up employment survey of a sample of doctorate recipients in science, engineering, and, until 1995, humanities fields.)

In Table A-3 the postgraduation plans of doctorate recipients are grouped as follows: “Postdoctoral Study Plans” (fellowship, research associateship, traineeship, other), “Planned Employment after Doctorate” (educational institution, industry, etc.), and “Postdoctoral Plans Unknown.” These categories include recipients who were still negotiating or seeking positions at the time of survey completion, as well as those whose plans were definite. The sum of these lines equals 100 percent for each column, with allowance for rounding: for example, 28.0 percent of all psychology doctorate recipients had postdoctoral study plans, 54.2 percent planned to be employed, and 17.8 percent did not report their post-graduation plans, totaling 100 percent. The study rows is further subdivided by type of study or appointment (fellowships, research associateships, traineeships, and other study). The percentages in these subdivisions sum to the percent of respondents in the given column who reported plans for postdoctoral study. The employment row is similarly subdivided by type of employer. The percentages for these rows add to percentage of respondents in the given column who planned employment. The category for educational institutions includes elementary and secondary schools as well as colleges and universities, and the category for government includes military service.

The four lines of data beginning with “Definite Postdoctoral Study” distinguish between individuals who had definite postgraduation plans at the time of survey completion (item B1: “Am returning to, or continuing in, predoctoral employment” or “Have signed contract or made definite commitment”) and those who were still seeking employment or postdoctoral study (item B1: “Am negotiating with one or more specific organizations,” “Am seeking position but



have no specific prospects,” or “Other”). These four lines, when added to the prior line, “Postdoctoral Plans Unknown,” total 100 percent with allowance for rounding. The two lines “Definite Postdoctoral Study” and “Seeking Postdoctoral Study” add to give the percentage for “Postdoctoral Study Plans”; the two lines “Definite Employment” and “Seeking Employment” add to give the percentage for “Planned Employment After Doctorate.”

Percentages showing the distribution of doctorate recipients by postdoctoral work activity and region of employment are based only on the number of recipients who had *definite employment commitments* at the time they completed the questionnaire. These percentages exclude recipients who planned postdoctoral study (as described above) and recipients who were still *seeking* employment at the time they completed the questionnaire. (Note that the rows on specific postdoctoral study and employment plans discussed earlier include individuals whose plans were *not definite*.) Revisions to the questionnaire format beginning in 1990 resulted in higher rates of nonresponse to the item on work activity through 1993, when the rate was 15.1 percent. The questionnaire was revised again in 1994, and nonresponse subsequently dropped to 11.9 percent in 1994 and 10.7 in 1995. A final revision in 1995 dropped the nonresponse for this item to just 3.4 percent in 1997.

The U.S. regions of employment shown in Table A-3 include the following states and territories:

|                               |                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <i>New England:</i>           | Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont                                             |
| <i>Middle Atlantic:</i>       | New Jersey, New York, Pennsylvania                                                                                  |
| <i>East North Central:</i>    | Illinois, Indiana, Michigan, Ohio, Wisconsin                                                                        |
| <i>West North Central:</i>    | Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota                                             |
| <i>South Atlantic:</i>        | Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia |
| <i>East South Central:</i>    | Alabama, Kentucky, Mississippi, Tennessee                                                                           |
| <i>West South Central:</i>    | Arkansas, Louisiana, Oklahoma, Texas                                                                                |
| <i>Mountain:</i>              | Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming                                                |
| <i>Pacific &amp; Insular:</i> | Alaska, California, Hawaii, Oregon, Washington, American Samoa, Guam, Puerto Rico, Trust Territory, Virgin Islands  |

**TABLE A-4:** Table A-4 contains data by race/ethnicity and citizenship for selected variables included in Tables A-3 and A-5. Field groupings may differ from those in reports published by Federal sponsors of the SED.

The racial/ethnic question has undergone several revisions over the years. In 1977 it was modified to correspond to a standard question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in Federally sponsored surveys; an explanation of the effect of these changes is detailed on page 13 of *Summary Report 1977*. (Note: Changes in the OMB guidelines prompted the moving of persons having origins in the Indian subcontinent from the white category to the Asian category.) In 1980 the item was further revised in two ways: (1) the Hispanic category was subdivided into Puerto Rican, Mexican American, and other Hispanic to provide more detail for users of the racial/ethnic data, and (2) respondents were asked to check only one racial category. (Before 1980 doctorate recipients could check more than one category to indicate their race.)

The item was modified again in 1982 to separate the questions on race and ethnicity. Since then respondents have been asked to first check one of the four racial group categories (American Indian, Asian, black, or white) and then indicate whether or not they are Hispanic. In Table A-4, doctorate recipients who reported Hispanic heritage, regardless of racial designation, are included in one of three Hispanic groups: Puerto Rican, Mexican American, or other Hispanic. The remaining survey respondents are then counted in the respective racial groups. (Note: doctorate recipients who checked the category “American Indian or Alaskan Native” are identified as American Indian in this report.)

***NOTE about median age and time lapse (to doctorate):** The method of computing medians has been revised. Beginning with Summary Report 1994, **months** (of birth, baccalaureate, and doctorate) are included in the calculations; medians presented in earlier reports were based only on years. Some medians would be the same regardless of the method of computation, but the new method generally computes slightly different results. While variation is small (usually one or two decimal places), the reader should consider these differences when comparing medians presented in this report with those in earlier reports. See explanatory information on Table A-3 for further description.*

In the section of “Doctoral Program Support” a recipient counts in more than one category if support was received from multiple sources. Because a student counts more than once for sources of support, the vertical percentages sum to more than 100 percent. See the explanatory note on Appendix Table A-5 for further detail. (Data on the *primary* source of support for doctorate recipients are presented in the body of the report.)

The other sections in Table A-4 correspond to many of those in Appendix Table A-3. The reader is referred to the explanatory note on Table A-3 for additional information.

**TABLE A-5:** Table A-5 displays data reported in item A11 on financial resources used in support of the respondent's doctoral program, by broad field and sex of recipient. Field groupings may differ from those in reports published by Federal sponsors of the SED.

A recipient counts in more than one category in Table A-5 if more than one financial resource was reported. Because a student counts once for each of his/her financial resources, the vertical percentages sum to more than 100 percent. (Data on the *primary* financial resources for doctorate recipients are presented in the body of the report.) Please consult Appendix C: Technical Notes for additional information on changes in the coding of Sources of Support/Financial Resources.

**TABLE A-6:** Table A-6 shows, by broad field and sex, the number of persons receiving a doctorate in the most recent year from institutions in each of the 50 states, the District of Columbia, and Puerto Rico. Field groupings may differ from those in reports published by Federal sponsors of the SED. See appendix E for a description of field groupings as reported in this table; see the questionnaire's Specialties List in appendix D for the names and codes of the subfields included.

**TABLE A-7:** Table A-7 displays data by doctorate-granting institution and major field. It includes all institutions in the United States (the 50 states, the District of Columbia, and Puerto Rico) that awarded doctoral degrees in the most recent year. Field groupings may differ from those in reports published by Federal sponsors of the SED and from departmental designations at institutions.

APPENDIX TABLE A-1. Number of doctorate recipients, by gender and subfield, 1998

| Subfield of Doctorate                | Number of Doctorates |               |               | Subfield of Doctorate                 | Number of Doctorates |              |              |
|--------------------------------------|----------------------|---------------|---------------|---------------------------------------|----------------------|--------------|--------------|
|                                      | Total*               | Men           | Women         |                                       | Total*               | Men          | Women        |
| <b>TOTAL ALL FIELDS</b>              | <b>42,683</b>        | <b>24,653</b> | <b>17,856</b> |                                       |                      |              |              |
| <b>PHYSICAL SCIENCES</b>             | <b>6,739</b>         | <b>5,104</b>  | <b>1,600</b>  | Engineering Science                   | 50                   | 42           | 8            |
| MATHEMATICS                          | 1,177                | 872           | 297           | Environmental Health Engineering      | 63                   | 46           | 17           |
| Applied Mathematics                  | 265                  | 203           | 61            | Industrial/Manufacturing              | 227                  | 187          | 39           |
| Algebra                              | 75                   | 57            | 18            | Materials Science                     | 482                  | 404          | 75           |
| Analysis & Functional Analysis       | 130                  | 105           | 25            | Mechanical                            | 936                  | 849          | 79           |
| Geometry                             | 54                   | 39            | 15            | Metallurgical                         | 59                   | 51           | 7            |
| Logic                                | 16                   | 11            | 5             | Mining & Mineral                      | 21                   | 17           | 4            |
| Number Theory                        | 46                   | 39            | 7             | Nuclear                               | 97                   | 86           | 10           |
| Mathematical Statistics              | 204                  | 141           | 62            | Ocean                                 | 29                   | 29           | 0            |
| Topology                             | 65                   | 52            | 13            | Operations Research                   | 62                   | 47           | 15           |
| Computing Theory & Practice          | 18                   | 15            | 3             | Petroleum                             | 48                   | 42           | 6            |
| Operations Research                  | 17                   | 11            | 6             | Polymer/Plastics                      | 59                   | 44           | 15           |
| Mathematics, General                 | 163                  | 118           | 39            | Systems                               | 68                   | 59           | 9            |
| Mathematics, Other                   | 124                  | 81            | 43            | Engineering, General                  | 30                   | 23           | 3            |
|                                      |                      |               |               | Engineering, Other                    | 194                  | 156          | 38           |
| COMPUTER SCIENCE                     | 923                  | 763           | 157           | <b>LIFE SCIENCES</b>                  | <b>8,540</b>         | <b>4,640</b> | <b>3,876</b> |
| Computer Science                     | 817                  | 696           | 118           | BIOLOGICAL SCIENCES                   | 5,848                | 3,298        | 2,533        |
| Information Sciences & Systems       | 106                  | 67            | 39            | Biochemistry                          | 798                  | 448          | 349          |
| PHYSICS & ASTRONOMY                  | 1,584                | 1,354         | 223           | Biomedical Sciences                   | 184                  | 101          | 79           |
| Astronomy                            | 91                   | 69            | 22            | Biophysics                            | 166                  | 119          | 47           |
| Astrophysics                         | 117                  | 93            | 24            | Biotechnology Research                | 12                   | 8            | 4            |
| Acoustics                            | 18                   | 12            | 6             | Bacteriology                          | 13                   | 9            | 4            |
| Chemical & Atomic/Molecular          | 99                   | 86            | 13            | Plant Genetics                        | 40                   | 22           | 18           |
| Elementary Particles                 | 173                  | 162           | 11            | Plant Pathology                       | 18                   | 10           | 8            |
| Fluids                               | 26                   | 26            | 0             | Plant Physiology                      | 61                   | 33           | 28           |
| Nuclear                              | 92                   | 81            | 11            | Botany, Other                         | 113                  | 58           | 55           |
| Optics                               | 104                  | 86            | 18            | Anatomy                               | 35                   | 27           | 8            |
| Plasma & High-Temperature            | 55                   | 53            | 2             | Biometrics and Biostatistics          | 75                   | 35           | 39           |
| Polymer                              | 24                   | 20            | 4             | Cell Biology                          | 299                  | 145          | 154          |
| Solid State & Low-Temperature        | 313                  | 276           | 37            | Ecology                               | 292                  | 177          | 114          |
| Physics, General                     | 190                  | 158           | 29            | Developmental Biology/Embryology      | 127                  | 66           | 61           |
| Physics, Other                       | 282                  | 232           | 46            | Endocrinology                         | 30                   | 16           | 14           |
| CHEMISTRY                            | 2,217                | 1,510         | 695           | Entomology                            | 138                  | 101          | 37           |
| Analytical                           | 384                  | 238           | 146           | Biological Immunology                 | 245                  | 130          | 115          |
| Inorganic                            | 287                  | 203           | 84            | Molecular Biology                     | 741                  | 414          | 324          |
| Nuclear                              | 5                    | 4             | 1             | Microbiology                          | 384                  | 214          | 169          |
| Organic                              | 597                  | 437           | 160           | Neuroscience                          | 412                  | 244          | 168          |
| Medicinal/Pharmaceutical             | 115                  | 68            | 46            | Nutritional Sciences                  | 137                  | 42           | 95           |
| Physical                             | 278                  | 201           | 77            | Parasitology                          | 15                   | 9            | 6            |
| Polymer                              | 123                  | 83            | 40            | Toxicology                            | 156                  | 95           | 61           |
| Theoretical                          | 41                   | 31            | 10            | Human & Animal Genetics               | 196                  | 105          | 91           |
| Chemistry, General                   | 286                  | 187           | 88            | Human & Animal Pathology              | 91                   | 56           | 35           |
| Chemistry, Other                     | 101                  | 58            | 43            | Human & Animal Pharmacology           | 256                  | 133          | 121          |
| EARTH, ATMOS., & MARINE SCI.         | 838                  | 605           | 228           | Human & Animal Physiology             | 258                  | 158          | 100          |
| Atmospheric Physics & Chemistry      | 38                   | 31            | 7             | Zoology, Other                        | 111                  | 68           | 43           |
| Atmospheric Dynamics                 | 24                   | 16            | 8             | Biological Sciences, General          | 217                  | 133          | 82           |
| Meteorology                          | 25                   | 19            | 5             | Biological Sciences, Other            | 228                  | 122          | 104          |
| Atmos. Sci./Meteorology, General     | 22                   | 13            | 8             | HEALTH SCIENCES                       | 1,500                | 488          | 1,006        |
| Atmos. Sci./Meteorology, Other       | 16                   | 14            | 2             | Speech-Lang. Pathology & Audiology    | 95                   | 20           | 74           |
| Geology                              | 171                  | 131           | 40            | Environmental Health                  | 54                   | 37           | 17           |
| Geochemistry                         | 58                   | 35            | 22            | Health Systems/Services Admin.        | 63                   | 27           | 36           |
| Geophysics & Seismology              | 106                  | 85            | 21            | Public Health                         | 157                  | 49           | 107          |
| Paleontology                         | 23                   | 16            | 7             | Epidemiology                          | 166                  | 54           | 112          |
| Mineralogy, Petrology                | 14                   | 9             | 5             | Exercise Physiology/Sci., Kinesiology | 129                  | 80           | 49           |
| Stratigraphy, Sedimentation          | 24                   | 20            | 4             | Nursing                               | 399                  | 17           | 380          |
| Geomorphology & Glacial Geology      | 20                   | 12            | 8             | Pharmacy                              | 156                  | 79           | 75           |
| Geological & Related Sci., General   | 13                   | 8             | 5             | Rehabilitation/Therapeutic Services   | 33                   | 11           | 22           |
| Geological & Related Sci., Other     | 40                   | 33            | 7             | Veterinary Medicine                   | 48                   | 30           | 18           |
| Environmental Science                | 73                   | 43            | 30            | Health Sciences, General              | 17                   | 5            | 12           |
| Hydrology & Water Resources          | 35                   | 27            | 8             | Health Sciences, Other                | 183                  | 79           | 104          |
| Oceanography                         | 94                   | 64            | 29            | AGRICULTURAL SCIENCES                 | 1,192                | 854          | 337          |
| Marine Sciences                      | 18                   | 15            | 3             | Agricultural Economics                | 155                  | 115          | 40           |
| Misc. Physical Sciences, Other       | 24                   | 14            | 9             | Agricultural Business & Management    | 2                    | 2            | 0            |
| ENGINEERING                          | 5,919                | 5,108         | 769           | Animal Breeding & Genetics            | 18                   | 12           | 6            |
| Aerospace, Aeronautic., Astronautic. | 242                  | 227           | 14            | Animal Nutrition                      | 45                   | 32           | 13           |
| Agricultural                         | 73                   | 68            | 5             | Dairy Science                         | 10                   | 8            | 2            |
| Bioengineering & Biomedical          | 207                  | 157           | 50            | Poultry Science                       | 11                   | 8            | 3            |
| Ceramic Sciences                     | 24                   | 22            | 2             | Fisheries Science & Management        | 30                   | 22           | 8            |
| Chemical                             | 667                  | 542           | 119           | Animal Sciences, Other                | 60                   | 44           | 16           |
| Civil                                | 587                  | 498           | 83            | Agronomy & Crop Science               | 96                   | 77           | 18           |
| Communications                       | 40                   | 34            | 6             | Plant Breeding & Genetics             | 69                   | 55           | 14           |
| Computer                             | 210                  | 187           | 22            | Plant Pathology                       | 66                   | 42           | 24           |
| Electrical, Electronics              | 1,343                | 1,206         | 127           | Plant Sciences, Other                 | 37                   | 23           | 14           |
| Engineering Mechanics                | 86                   | 73            | 13            | Food Engineering                      | 13                   | 10           | 3            |
| Engineering Physics                  | 15                   | 12            | 3             | Food Sciences, Other                  | 153                  | 87           | 66           |
|                                      |                      |               |               | Soil Chemistry/Microbiology           | 27                   | 20           | 7            |
|                                      |                      |               |               | Soil Sciences, Other                  | 74                   | 53           | 21           |
|                                      |                      |               |               | Horticulture Science                  | 60                   | 47           | 13           |
|                                      |                      |               |               | Forest Biology                        | 20                   | 14           | 6            |
|                                      |                      |               |               | Forest Engineering                    | 2                    | 2            | 0            |
|                                      |                      |               |               | Forest Management                     | 27                   | 18           | 9            |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-1. Number of doctorate recipients, by gender and subfield, 1998

| Subfield of Doctorate                 | Number of Doctorates |              |              | Subfield of Doctorate                 | Number of Doctorates |              |              |
|---------------------------------------|----------------------|--------------|--------------|---------------------------------------|----------------------|--------------|--------------|
|                                       | Total*               | Men          | Women        |                                       | Total*               | Men          | Women        |
| Wood Sci. & Pulp/Paper Tech.          | 25                   | 21           | 4            | Humanities, General                   | 23                   | 11           | 12           |
| Conservation/Renewable Nat. Res.      | 25                   | 14           | 11           | Humanities, Other                     | 159                  | 65           | 94           |
| Forestry & Related Sci., Other        | 69                   | 53           | 16           | <b>EDUCATION</b>                      | <b>6,559</b>         | <b>2,422</b> | <b>4,120</b> |
| Wildlife/Range Management             | 55                   | 41           | 14           | Curriculum & Instruction              | 885                  | 256          | 627          |
| Agricultural Sciences, General        | 8                    | 7            | 1            | Educational Admin. & Supervision      | 949                  | 402          | 545          |
| Agricultural Sciences, Other          | 35                   | 27           | 8            | Educational Leadership                | 1,114                | 436          | 678          |
| <b>SOCIAL SCIENCES (INCL. PSYCH.)</b> | <b>7,075</b>         | <b>3,206</b> | <b>3,838</b> | Educ./Instruct. Media Design          | 91                   | 45           | 46           |
| Anthropology                          | 425                  | 183          | 239          | Educ. Stat./Research Methods          | 56                   | 29           | 27           |
| Area Studies                          | 14                   | 3            | 11           | Educ. Assess., Test., & Meas.         | 35                   | 17           | 18           |
| Criminology                           | 55                   | 33           | 22           | Educational Psychology                | 325                  | 112          | 213          |
| Demography/Population Studies         | 31                   | 18           | 13           | School Psychology                     | 112                  | 31           | 81           |
| Economics                             | 973                  | 703          | 267          | Social/Phil. Found. Of Educ.          | 129                  | 47           | 82           |
| Econometrics                          | 25                   | 21           | 4            | Special Education                     | 248                  | 44           | 204          |
| Geography                             | 154                  | 105          | 49           | Counseling Educ./Couns. & Guidance    | 269                  | 89           | 180          |
| International Relations/Affairs       | 97                   | 64           | 33           | Higher Educ./Evaluation & Research    | 430                  | 184          | 246          |
| Political Science and Government      | 662                  | 418          | 243          | Pre-elementary/Early Childhood        | 54                   | 3            | 51           |
| Public Policy Analysis                | 97                   | 56           | 41           | Elementary Education                  | 62                   | 15           | 46           |
| Sociology                             | 549                  | 243          | 304          | Secondary Education                   | 55                   | 22           | 32           |
| Statistics                            | 60                   | 35           | 21           | Adult & Continuing Education          | 168                  | 59           | 109          |
| Urban Affairs/Studies                 | 75                   | 49           | 26           | <b>TEACHING FIELDS</b>                | <b>951</b>           | <b>391</b>   | <b>558</b>   |
| Social Sciences, General              | 30                   | 12           | 17           | Agricultural Education                | 25                   | 15           | 10           |
| Social Sciences, Other                | 147                  | 58           | 88           | Art Education                         | 46                   | 15           | 31           |
| <b>PSYCHOLOGY</b>                     | <b>3,681</b>         | <b>1,205</b> | <b>2,460</b> | Business Education                    | 30                   | 19           | 11           |
| Clinical                              | 1,350                | 376          | 969          | English Education                     | 53                   | 12           | 41           |
| Cognitive & Psycholinguistics         | 113                  | 62           | 50           | Foreign Languages Education           | 73                   | 32           | 41           |
| Comparative                           | 6                    | 2            | 4            | Health Education                      | 70                   | 13           | 57           |
| Counseling                            | 448                  | 153          | 295          | Home Economics Education              | 8                    | 3            | 5            |
| Developmental and Child               | 267                  | 57           | 207          | Technical/Industrial Arts Education   | 30                   | 20           | 10           |
| Human/Indv. & Family Development      | 118                  | 28           | 90           | Mathematics Education                 | 115                  | 37           | 78           |
| Experimental                          | 149                  | 84           | 65           | Music Education                       | 94                   | 54           | 40           |
| Educational                           | 61                   | 22           | 39           | Nursing Education                     | 14                   | 0            | 13           |
| Family & Marriage Counseling          | 51                   | 22           | 28           | Physical Education and Coaching       | 108                  | 66           | 42           |
| Industrial & Organizational           | 189                  | 78           | 110          | Reading Education                     | 77                   | 8            | 69           |
| Personality                           | 24                   | 9            | 15           | Science Education                     | 109                  | 51           | 57           |
| Physiological/Psychobiology           | 92                   | 43           | 49           | Social Science Education              | 15                   | 8            | 7            |
| Psychometrics                         | 8                    | 4            | 4            | Technical Education                   | 18                   | 9            | 9            |
| Quantitative                          | 15                   | 7            | 8            | Trade & Industrial Education          | 14                   | 11           | 3            |
| School                                | 106                  | 25           | 81           | Teacher Ed./Spec. Acad. & Voc., Other | 52                   | 18           | 34           |
| Social                                | 186                  | 69           | 117          | Education, General                    | 235                  | 82           | 145          |
| Psychology, General                   | 302                  | 96           | 205          | Education, Other                      | 391                  | 158          | 232          |
| Psychology, Other                     | 196                  | 68           | 124          | <b>PROFESSIONAL/OTHER FIELDS</b>      | <b>2,352</b>         | <b>1,359</b> | <b>978</b>   |
| <b>HUMANITIES</b>                     | <b>5,499</b>         | <b>2,814</b> | <b>2,675</b> | <b>BUSINESS AND MANAGEMENT</b>        | <b>1,165</b>         | <b>783</b>   | <b>374</b>   |
| History, American                     | 407                  | 257          | 150          | Accounting                            | 154                  | 92           | 62           |
| History, Asian                        | 70                   | 48           | 22           | Banking/Financial Support Services    | 83                   | 65           | 16           |
| History, European                     | 230                  | 133          | 97           | Business Admin. & Management          | 342                  | 240          | 98           |
| History/Philosophy of Sci. & Tech.    | 43                   | 24           | 19           | Business/Managerial Economics         | 56                   | 43           | 13           |
| History, General                      | 86                   | 56           | 30           | International Business                | 33                   | 22           | 11           |
| History, Other                        | 152                  | 85           | 67           | Mgmt. Info. Sys./Bus. Data Proc.      | 86                   | 63           | 21           |
| Classics                              | 84                   | 48           | 36           | Marketing Management & Research       | 143                  | 90           | 53           |
| Comparative Literature                | 162                  | 64           | 98           | Operations Research                   | 57                   | 47           | 10           |
| Linguistics                           | 219                  | 95           | 123          | Organizational Behavior               | 103                  | 51           | 52           |
| Speech & Rhetorical Studies           | 168                  | 85           | 83           | Bus. Mgmt./Admin. Serv., General      | 36                   | 23           | 13           |
| Letters, General                      | 22                   | 11           | 11           | Bus. Mgmt./Admin. Serv., Other        | 72                   | 47           | 25           |
| Letters, Other                        | 82                   | 31           | 51           | <b>COMMUNICATIONS</b>                 | <b>372</b>           | <b>161</b>   | <b>211</b>   |
| American Studies                      | 100                  | 48           | 52           | Communications Research               | 52                   | 17           | 35           |
| Archeology                            | 34                   | 11           | 23           | Mass Communications                   | 141                  | 71           | 70           |
| Art History/Criticism/Conservation    | 220                  | 55           | 165          | Communications Theory                 | 48                   | 21           | 27           |
| Music                                 | 694                  | 396          | 294          | Communications, General               | 62                   | 25           | 37           |
| Philosophy                            | 408                  | 285          | 120          | Communications, Other                 | 69                   | 27           | 42           |
| Religion                              | 327                  | 238          | 89           | <b>OTHER PROFESSIONAL FIELDS</b>      | <b>721</b>           | <b>363</b>   | <b>356</b>   |
| Drama/Theater Arts                    | 91                   | 46           | 45           | Architectural Environmental Design    | 51                   | 30           | 19           |
| <b>LANGUAGE &amp; LITERATURE</b>      | <b>1,718</b>         | <b>722</b>   | <b>994</b>   | Home Economics                        | 17                   | 4            | 13           |
| American                              | 388                  | 159          | 229          | Law                                   | 31                   | 18           | 13           |
| English                               | 688                  | 296          | 392          | Library Science                       | 34                   | 9            | 25           |
| French                                | 137                  | 50           | 86           | Parks/Recreation/Leisure/Fitness      | 36                   | 28           | 8            |
| German                                | 106                  | 41           | 64           | Public Administration                 | 105                  | 57           | 48           |
| Italian                               | 33                   | 14           | 19           | Social Work                           | 236                  | 74           | 162          |
| Spanish                               | 207                  | 93           | 114          | Theology/Religious Education          | 160                  | 123          | 37           |
| Russian                               | 43                   | 15           | 28           | Professional Fields, General          | 0                    | 0            | 0            |
| Slavic                                | 15                   | 8            | 7            | Professional Fields, Other            | 51                   | 20           | 31           |
| Chinese                               | 18                   | 12           | 6            | <b>OTHER/UNKNOWN FIELDS**</b>         | <b>94</b>            | <b>52</b>    | <b>37</b>    |
| Japanese                              | 11                   | 6            | 5            |                                       |                      |              |              |
| Hebrew                                | 8                    | 4            | 4            |                                       |                      |              |              |
| Arabic                                | 9                    | 5            | 4            |                                       |                      |              |              |
| Other Language & Literature           | 55                   | 19           | 36           |                                       |                      |              |              |

\*Includes a total of 174 doctorate recipients whose gender was unknown.

\*\*Includes 20 doctorate recipients whose doctoral field was unknown.

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.

APPENDIX TABLE A-2. Number of doctorate recipients by citizenship, race/ethnicity, and subfield, 1998

| Subfield of Doctorate                      | Total Doctorates* | Non-U.S. Citizens Temp. Visas | U.S. Citizens and Non-U.S. with Permanent Visas |                  |              |              |               |              |               |                |            |
|--------------------------------------------|-------------------|-------------------------------|-------------------------------------------------|------------------|--------------|--------------|---------------|--------------|---------------|----------------|------------|
|                                            |                   |                               | Total                                           | American Indian† | Asian‡       | Black        | White         | Puerto Rican | Mexican Amer. | Other Hispanic | Unkn. Race |
| <b>TOTAL ALL FIELDS</b>                    | <b>42,683</b>     | <b>8,642</b>                  | <b>30,914</b>                                   | <b>189</b>       | <b>2,720</b> | <b>1,586</b> | <b>24,153</b> | <b>299</b>   | <b>421</b>    | <b>591</b>     | <b>955</b> |
| <b>PHYSICAL SCIENCES</b>                   | <b>6,739</b>      | <b>2,041</b>                  | <b>4,211</b>                                    | <b>19</b>        | <b>544</b>   | <b>93</b>    | <b>3,297</b>  | <b>25</b>    | <b>35</b>     | <b>51</b>      | <b>147</b> |
| <b>MATHEMATICS</b>                         | <b>1,177</b>      | <b>419</b>                    | <b>666</b>                                      | <b>3</b>         | <b>71</b>    | <b>16</b>    | <b>522</b>    | <b>7</b>     | <b>6</b>      | <b>14</b>      | <b>27</b>  |
| Applied Mathematics                        | 265               | 110                           | 145                                             | 0                | 17           | 5            | 107           | 3            | 3             | 2              | 8          |
| Algebra                                    | 75                | 23                            | 51                                              | 0                | 3            | 1            | 45            | 0            | 1             | 0              | 1          |
| Analysis & Functional Analysis             | 130               | 51                            | 76                                              | 0                | 10           | 1            | 61            | 0            | 0             | 1              | 3          |
| Geometry                                   | 54                | 19                            | 31                                              | 1                | 2            | 1            | 26            | 0            | 1             | 0              | 0          |
| Logic                                      | 16                | 7                             | 8                                               | 0                | 0            | 0            | 8             | 0            | 0             | 0              | 0          |
| Number Theory                              | 46                | 10                            | 35                                              | 0                | 0            | 0            | 32            | 1            | 0             | 0              | 2          |
| Mathematical Statistics                    | 204               | 76                            | 121                                             | 1                | 19           | 2            | 95            | 1            | 0             | 1              | 2          |
| Topology                                   | 65                | 21                            | 44                                              | 0                | 5            | 1            | 31            | 0            | 0             | 4              | 3          |
| Computing Theory & Practice                | 18                | 11                            | 6                                               | 0                | 0            | 0            | 5             | 1            | 0             | 0              | 0          |
| Operations Research                        | 17                | 5                             | 11                                              | 0                | 1            | 0            | 9             | 0            | 0             | 1              | 0          |
| Mathematics, General                       | 163               | 44                            | 64                                              | 1                | 10           | 1            | 42            | 0            | 1             | 2              | 7          |
| Mathematics, Other                         | 124               | 42                            | 74                                              | 0                | 4            | 4            | 61            | 1            | 0             | 3              | 1          |
| <b>COMPUTER SCIENCE</b>                    | <b>923</b>        | <b>309</b>                    | <b>551</b>                                      | <b>3</b>         | <b>91</b>    | <b>14</b>    | <b>406</b>    | <b>2</b>     | <b>3</b>      | <b>9</b>       | <b>23</b>  |
| Computer Science                           | 817               | 290                           | 468                                             | 3                | 82           | 8            | 345           | 1            | 3             | 6              | 20         |
| Information Sciences & Systems             | 106               | 19                            | 83                                              | 0                | 9            | 6            | 61            | 1            | 0             | 3              | 3          |
| <b>PHYSICS &amp; ASTRONOMY</b>             | <b>1,584</b>      | <b>499</b>                    | <b>962</b>                                      | <b>3</b>         | <b>124</b>   | <b>11</b>    | <b>768</b>    | <b>2</b>     | <b>6</b>      | <b>12</b>      | <b>36</b>  |
| Astronomy                                  | 91                | 17                            | 65                                              | 1                | 5            | 0            | 52            | 0            | 0             | 0              | 7          |
| Astrophysics                               | 117               | 28                            | 83                                              | 0                | 8            | 1            | 69            | 1            | 1             | 0              | 3          |
| Acoustics                                  | 18                | 7                             | 9                                               | 0                | 0            | 0            | 9             | 0            | 0             | 0              | 0          |
| Chemical & Atomic/Molecular                | 99                | 32                            | 65                                              | 0                | 12           | 0            | 47            | 0            | 0             | 1              | 5          |
| Elementary Particle                        | 173               | 65                            | 105                                             | 0                | 12           | 1            | 89            | 0            | 1             | 2              | 0          |
| Fluids                                     | 26                | 12                            | 14                                              | 0                | 0            | 0            | 13            | 0            | 0             | 1              | 0          |
| Nuclear                                    | 92                | 21                            | 64                                              | 0                | 3            | 1            | 56            | 1            | 0             | 1              | 2          |
| Optics                                     | 104               | 35                            | 68                                              | 0                | 11           | 1            | 53            | 0            | 0             | 2              | 1          |
| Plasma & High-Temperature                  | 55                | 13                            | 41                                              | 0                | 7            | 0            | 30            | 0            | 0             | 2              | 2          |
| Polymer                                    | 24                | 10                            | 14                                              | 1                | 3            | 0            | 10            | 0            | 0             | 0              | 0          |
| Solid State & Low-Temperature              | 313               | 132                           | 176                                             | 0                | 25           | 2            | 143           | 0            | 1             | 1              | 4          |
| Physics, General                           | 190               | 56                            | 109                                             | 1                | 19           | 2            | 79            | 0            | 1             | 1              | 6          |
| Physics, Other                             | 282               | 71                            | 149                                             | 0                | 19           | 3            | 118           | 0            | 2             | 1              | 6          |
| <b>CHEMISTRY</b>                           | <b>2,217</b>      | <b>610</b>                    | <b>1,455</b>                                    | <b>7</b>         | <b>207</b>   | <b>43</b>    | <b>1,123</b>  | <b>9</b>     | <b>15</b>     | <b>10</b>      | <b>41</b>  |
| Analytical                                 | 384               | 105                           | 264                                             | 0                | 35           | 14           | 201           | 4            | 2             | 2              | 6          |
| Inorganic                                  | 287               | 63                            | 213                                             | 1                | 23           | 2            | 178           | 1            | 4             | 2              | 2          |
| Nuclear                                    | 5                 | 1                             | 4                                               | 0                | 0            | 0            | 4             | 0            | 0             | 0              | 0          |
| Organic                                    | 597               | 175                           | 407                                             | 1                | 59           | 10           | 325           | 1            | 4             | 2              | 5          |
| Medicinal/Pharmaceutical                   | 115               | 33                            | 69                                              | 0                | 13           | 5            | 46            | 0            | 0             | 0              | 5          |
| Physical                                   | 278               | 73                            | 200                                             | 2                | 26           | 6            | 157           | 2            | 3             | 2              | 2          |
| Polymer                                    | 123               | 47                            | 72                                              | 0                | 22           | 3            | 47            | 0            | 0             | 0              | 0          |
| Theoretical                                | 41                | 17                            | 23                                              | 1                | 1            | 0            | 20            | 0            | 0             | 0              | 1          |
| Chemistry, General                         | 286               | 66                            | 135                                             | 2                | 17           | 0            | 100           | 1            | 1             | 1              | 13         |
| Chemistry, Other                           | 101               | 30                            | 68                                              | 0                | 11           | 3            | 45            | 0            | 1             | 1              | 7          |
| <b>EARTH, ATMOS., &amp; MARINE SCIENCE</b> | <b>838</b>        | <b>204</b>                    | <b>577</b>                                      | <b>3</b>         | <b>51</b>    | <b>9</b>     | <b>478</b>    | <b>5</b>     | <b>5</b>      | <b>6</b>       | <b>20</b>  |
| Atmospheric Physics & Chem.                | 38                | 7                             | 29                                              | 0                | 2            | 0            | 25            | 1            | 0             | 0              | 1          |
| Atmospheric Dynamics                       | 24                | 7                             | 17                                              | 0                | 4            | 1            | 11            | 0            | 0             | 0              | 1          |
| Meteorology                                | 25                | 6                             | 17                                              | 0                | 2            | 0            | 15            | 0            | 0             | 0              | 0          |
| Atmos.Sci./Meteorology, General            | 22                | 7                             | 10                                              | 0                | 1            | 1            | 8             | 0            | 0             | 0              | 0          |
| Atmos.Sci./Meteorology, Other              | 16                | 3                             | 12                                              | 0                | 0            | 0            | 10            | 0            | 0             | 0              | 2          |
| Geology                                    | 171               | 39                            | 119                                             | 1                | 3            | 1            | 107           | 0            | 2             | 0              | 5          |
| Geochemistry                               | 58                | 11                            | 45                                              | 2                | 6            | 1            | 34            | 0            | 0             | 2              | 0          |
| Geophysics & Seismology                    | 106               | 42                            | 59                                              | 0                | 9            | 1            | 44            | 0            | 1             | 0              | 4          |
| Paleontology                               | 23                | 7                             | 16                                              | 0                | 0            | 0            | 15            | 1            | 0             | 0              | 0          |
| Mineralogy, Petrology                      | 14                | 2                             | 11                                              | 0                | 1            | 0            | 9             | 0            | 0             | 1              | 0          |
| Stratigraphy, Sedimentation                | 24                | 8                             | 15                                              | 0                | 1            | 0            | 14            | 0            | 0             | 0              | 0          |
| Geomorphology & Glacial Geol.              | 20                | 1                             | 19                                              | 0                | 0            | 0            | 18            | 0            | 0             | 1              | 0          |
| Geological & Related Sci., General         | 13                | 4                             | 8                                               | 0                | 1            | 0            | 6             | 0            | 1             | 0              | 0          |
| Geological & Related Sci., Other           | 40                | 7                             | 29                                              | 0                | 5            | 1            | 21            | 0            | 0             | 0              | 2          |
| Environmental Science                      | 73                | 17                            | 48                                              | 0                | 7            | 3            | 37            | 0            | 0             | 0              | 1          |
| Hydrology & Water Resources                | 35                | 10                            | 25                                              | 0                | 3            | 0            | 21            | 0            | 0             | 0              | 1          |
| Oceanography                               | 94                | 21                            | 64                                              | 0                | 4            | 0            | 54            | 2            | 1             | 2              | 1          |
| Marine Sciences                            | 18                | 1                             | 16                                              | 0                | 1            | 0            | 13            | 1            | 0             | 0              | 1          |
| Misc. Physical Sciences, Other             | 24                | 4                             | 18                                              | 0                | 1            | 0            | 16            | 0            | 0             | 0              | 1          |
| <b>ENGINEERING</b>                         | <b>5,919</b>      | <b>2,392</b>                  | <b>3,021</b>                                    | <b>13</b>        | <b>555</b>   | <b>84</b>    | <b>2,160</b>  | <b>17</b>    | <b>30</b>     | <b>63</b>      | <b>99</b>  |
| Aerospace, Aeronautic., Astronautic.       | 242               | 66                            | 151                                             | 0                | 12           | 2            | 125           | 1            | 3             | 1              | 7          |
| Agricultural                               | 73                | 37                            | 29                                              | 1                | 3            | 1            | 23            | 0            | 0             | 0              | 1          |
| Bioengineering & Biomedical                | 207               | 50                            | 147                                             | 1                | 32           | 0            | 110           | 0            | 0             | 1              | 3          |
| Ceramic Science                            | 24                | 8                             | 15                                              | 1                | 2            | 0            | 12            | 0            | 0             | 0              | 0          |
| Chemical                                   | 667               | 282                           | 340                                             | 3                | 55           | 3            | 258           | 3            | 1             | 6              | 11         |
| Civil                                      | 587               | 262                           | 258                                             | 0                | 33           | 8            | 191           | 1            | 5             | 9              | 11         |
| Communications                             | 40                | 20                            | 19                                              | 0                | 11           | 0            | 8             | 0            | 0             | 0              | 0          |
| Computer                                   | 210               | 94                            | 105                                             | 1                | 31           | 2            | 64            | 0            | 1             | 4              | 2          |

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. See inside the back cover for a description of fields as reported in this table.

Refer also to the explanatory note about this table in front of Appendix A.

\*Includes 3,127 individuals who did not report their citizenship at time of doctorate. See the "Important Notice" at the front of this packet for discussion of item response rate issues.

†Includes Alaskan Native. ‡Includes Pacific Islander.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-2. Number of doctorate recipients by citizenship, race/ethnicity, and subfield, 1998

| Subfield of Doctorate                 | Total Doctorates* | Non-U.S. Citizens Temp. Visas | U.S. Citizens and Non-U.S. with Permanent Visas |                  |            |            |              |              |               |                |            |
|---------------------------------------|-------------------|-------------------------------|-------------------------------------------------|------------------|------------|------------|--------------|--------------|---------------|----------------|------------|
|                                       |                   |                               | Total                                           | American Indian† | Asian‡     | Black      | White        | Puerto Rican | Mexican Amer. | Other Hispanic | Unkn. Race |
| Electrical, Electronics               | 1,343             | 546                           | 673                                             | 2                | 164        | 21         | 447          | 3            | 6             | 17             | 13         |
| Engineering Mechanics                 | 86                | 36                            | 46                                              | 0                | 7          | 1          | 33           | 1            | 1             | 1              | 2          |
| Engineering Physics                   | 15                | 4                             | 11                                              | 0                | 1          | 0          | 9            | 0            | 0             | 1              | 0          |
| Engineering Science                   | 50                | 13                            | 31                                              | 0                | 3          | 3          | 21           | 0            | 0             | 1              | 3          |
| Environmental Health Engineering      | 63                | 22                            | 35                                              | 0                | 5          | 2          | 25           | 0            | 0             | 1              | 2          |
| Industrial/Manufacturing              | 227               | 113                           | 99                                              | 0                | 11         | 8          | 70           | 3            | 3             | 1              | 3          |
| Materials Science                     | 482               | 185                           | 266                                             | 0                | 46         | 10         | 192          | 1            | 4             | 3              | 10         |
| Mechanical                            | 936               | 391                           | 466                                             | 2                | 83         | 13         | 335          | 4            | 2             | 10             | 17         |
| Metallurgical                         | 59                | 21                            | 32                                              | 1                | 7          | 0          | 21           | 0            | 0             | 0              | 3          |
| Mining & Mineral                      | 21                | 10                            | 8                                               | 0                | 2          | 1          | 5            | 0            | 0             | 0              | 0          |
| Nuclear                               | 97                | 30                            | 55                                              | 0                | 5          | 1          | 44           | 0            | 1             | 2              | 2          |
| Ocean                                 | 29                | 9                             | 14                                              | 1                | 3          | 0          | 9            | 0            | 0             | 0              | 1          |
| Operations Research                   | 62                | 27                            | 32                                              | 0                | 5          | 2          | 22           | 0            | 1             | 1              | 1          |
| Petroleum                             | 48                | 38                            | 8                                               | 0                | 0          | 0          | 6            | 0            | 0             | 1              | 1          |
| Polymer/Plastics                      | 59                | 33                            | 24                                              | 0                | 10         | 0          | 12           | 0            | 0             | 2              | 0          |
| Systems                               | 68                | 21                            | 41                                              | 0                | 6          | 1          | 33           | 0            | 0             | 0              | 1          |
| Engineering, General                  | 30                | 4                             | 7                                               | 0                | 3          | 0          | 4            | 0            | 0             | 0              | 0          |
| Engineering, Other                    | 194               | 70                            | 109                                             | 0                | 15         | 5          | 81           | 0            | 2             | 1              | 5          |
| <b>LIFE SCIENCES</b>                  | <b>8,540</b>      | <b>1,946</b>                  | <b>6,020</b>                                    | <b>25</b>        | <b>800</b> | <b>193</b> | <b>4,609</b> | <b>53</b>    | <b>79</b>     | <b>111</b>     | <b>150</b> |
| <b>BIOLOGICAL SCIENCES</b>            | <b>5,848</b>      | <b>1,230</b>                  | <b>4,279</b>                                    | <b>12</b>        | <b>658</b> | <b>108</b> | <b>3,226</b> | <b>43</b>    | <b>54</b>     | <b>72</b>      | <b>106</b> |
| Biochemistry                          | 798               | 195                           | 554                                             | 4                | 114        | 13         | 394          | 5            | 8             | 7              | 9          |
| Biomedical Sciences                   | 184               | 35                            | 116                                             | 0                | 32         | 2          | 71           | 2            | 2             | 1              | 6          |
| Biophysics                            | 166               | 43                            | 117                                             | 0                | 31         | 1          | 78           | 0            | 1             | 1              | 5          |
| Biotechnology Research                | 12                | 8                             | 4                                               | 0                | 0          | 0          | 4            | 0            | 0             | 0              | 0          |
| Bacteriology                          | 13                | 4                             | 9                                               | 0                | 0          | 1          | 8            | 0            | 0             | 0              | 0          |
| Plant Genetics                        | 40                | 10                            | 29                                              | 0                | 5          | 0          | 22           | 2            | 0             | 0              | 0          |
| Plant Pathology                       | 18                | 9                             | 8                                               | 0                | 0          | 0          | 7            | 0            | 0             | 0              | 1          |
| Plant Physiology                      | 61                | 25                            | 33                                              | 0                | 3          | 1          | 29           | 0            | 0             | 0              | 0          |
| Botany, Other                         | 113               | 26                            | 81                                              | 1                | 8          | 0          | 66           | 2            | 2             | 0              | 2          |
| Anatomy                               | 35                | 6                             | 27                                              | 0                | 5          | 0          | 19           | 0            | 0             | 1              | 2          |
| Biometrics and Biostatistics          | 75                | 31                            | 44                                              | 0                | 15         | 2          | 25           | 0            | 0             | 1              | 1          |
| Cell Biology                          | 299               | 45                            | 241                                             | 1                | 48         | 3          | 165          | 1            | 8             | 10             | 5          |
| Ecology                               | 292               | 31                            | 246                                             | 1                | 2          | 5          | 231          | 1            | 0             | 2              | 4          |
| Developmental Biology/Embryology      | 127               | 28                            | 98                                              | 0                | 21         | 2          | 73           | 1            | 0             | 1              | 0          |
| Endocrinology                         | 30                | 8                             | 22                                              | 0                | 1          | 1          | 18           | 0            | 0             | 2              | 0          |
| Entomology                            | 138               | 39                            | 85                                              | 0                | 7          | 2          | 70           | 1            | 2             | 3              | 0          |
| Biological Immunology                 | 245               | 37                            | 200                                             | 0                | 26         | 6          | 156          | 2            | 1             | 2              | 7          |
| Molecular Biology                     | 741               | 194                           | 506                                             | 2                | 103        | 8          | 360          | 5            | 5             | 11             | 12         |
| Microbiology                          | 384               | 95                            | 276                                             | 1                | 40         | 6          | 209          | 2            | 3             | 6              | 9          |
| Neuroscience                          | 412               | 70                            | 332                                             | 2                | 58         | 13         | 235          | 3            | 2             | 6              | 13         |
| Nutritional Sciences                  | 137               | 29                            | 92                                              | 0                | 8          | 5          | 75           | 1            | 3             | 0              | 0          |
| Parasitology                          | 15                | 4                             | 11                                              | 0                | 1          | 1          | 8            | 1            | 0             | 0              | 0          |
| Toxicology                            | 156               | 17                            | 134                                             | 0                | 13         | 4          | 110          | 0            | 4             | 1              | 2          |
| Human & Animal Genetics               | 196               | 32                            | 153                                             | 0                | 16         | 3          | 122          | 2            | 2             | 4              | 4          |
| Human & Animal Pathology              | 91                | 16                            | 69                                              | 0                | 12         | 1          | 51           | 1            | 1             | 0              | 3          |
| Human & Animal Pharmacology           | 256               | 63                            | 181                                             | 0                | 36         | 9          | 125          | 3            | 1             | 3              | 4          |
| Human & Animal Physiology             | 258               | 48                            | 201                                             | 0                | 26         | 12         | 153          | 2            | 1             | 4              | 3          |
| Zoology, Other                        | 111               | 8                             | 101                                             | 0                | 3          | 0          | 93           | 1            | 2             | 1              | 1          |
| Biological Sciences, General          | 217               | 27                            | 149                                             | 0                | 10         | 4          | 119          | 4            | 3             | 2              | 7          |
| Biological Sciences, Other            | 228               | 47                            | 160                                             | 0                | 14         | 3          | 130          | 1            | 3             | 3              | 6          |
| <b>HEALTH SCIENCES</b>                | <b>1,500</b>      | <b>239</b>                    | <b>1,116</b>                                    | <b>4</b>         | <b>84</b>  | <b>62</b>  | <b>903</b>   | <b>7</b>     | <b>15</b>     | <b>14</b>      | <b>27</b>  |
| Speech-Lang. Pathology & Audiology    | 95                | 11                            | 78                                              | 1                | 4          | 11         | 62           | 0            | 0             | 0              | 0          |
| Environmental Health                  | 54                | 17                            | 30                                              | 0                | 5          | 0          | 24           | 0            | 0             | 1              | 0          |
| Health Systems/Services Admin.        | 63                | 8                             | 52                                              | 0                | 5          | 2          | 44           | 0            | 0             | 1              | 0          |
| Public Health                         | 157               | 19                            | 132                                             | 2                | 13         | 9          | 101          | 1            | 2             | 3              | 1          |
| Epidemiology                          | 166               | 21                            | 133                                             | 0                | 9          | 5          | 110          | 0            | 2             | 3              | 4          |
| Exercise Physiology/Sci., Kinesiology | 129               | 20                            | 103                                             | 0                | 2          | 1          | 95           | 3            | 0             | 1              | 1          |
| Nursing                               | 399               | 27                            | 345                                             | 1                | 12         | 21         | 295          | 0            | 7             | 2              | 7          |
| Pharmacy                              | 156               | 68                            | 77                                              | 0                | 17         | 4          | 48           | 2            | 1             | 2              | 3          |
| Rehabilitation/Therapeutic Services   | 33                | 1                             | 31                                              | 0                | 3          | 2          | 26           | 0            | 0             | 0              | 0          |
| Veterinary Medicine                   | 48                | 13                            | 31                                              | 0                | 2          | 2          | 23           | 0            | 1             | 0              | 3          |
| Health Sciences, General              | 17                | 2                             | 14                                              | 0                | 0          | 2          | 12           | 0            | 0             | 0              | 0          |
| Health Sciences, Other                | 183               | 32                            | 90                                              | 0                | 12         | 3          | 63           | 1            | 2             | 1              | 8          |
| <b>AGRICULTURAL SCIENCES</b>          | <b>1,192</b>      | <b>477</b>                    | <b>625</b>                                      | <b>9</b>         | <b>58</b>  | <b>23</b>  | <b>480</b>   | <b>3</b>     | <b>10</b>     | <b>25</b>      | <b>17</b>  |
| Agricultural Economics                | 155               | 58                            | 84                                              | 0                | 11         | 4          | 63           | 0            | 0             | 2              | 4          |
| Agricultural Business & Management    | 2                 | 1                             | 1                                               | 0                | 0          | 0          | 0            | 0            | 0             | 1              | 0          |
| Animal Breeding & Genetics            | 18                | 6                             | 9                                               | 0                | 0          | 0          | 9            | 0            | 0             | 0              | 0          |
| Animal Nutrition                      | 45                | 14                            | 28                                              | 1                | 0          | 0          | 25           | 0            | 1             | 0              | 1          |
| Dairy Science                         | 10                | 5                             | 3                                               | 0                | 0          | 0          | 3            | 0            | 0             | 0              | 0          |
| Poultry Science                       | 11                | 7                             | 2                                               | 0                | 1          | 0          | 1            | 0            | 0             | 0              | 0          |
| Fisheries Science & Management        | 30                | 7                             | 21                                              | 1                | 2          | 0          | 17           | 0            | 0             | 1              | 0          |
| Animal Sciences, Other                | 60                | 18                            | 40                                              | 0                | 3          | 0          | 32           | 0            | 3             | 2              | 0          |
| Agronomy & Crop Science               | 96                | 37                            | 42                                              | 1                | 7          | 2          | 29           | 1            | 0             | 2              | 0          |
| Plant Breeding & Genetics             | 69                | 29                            | 34                                              | 2                | 3          | 2          | 23           | 0            | 1             | 1              | 2          |
| Plant Pathology                       | 66                | 35                            | 28                                              | 0                | 3          | 2          | 16           | 2            | 0             | 4              | 1          |
| Plant Sciences, Other                 | 37                | 21                            | 14                                              | 0                | 0          | 1          | 11           | 0            | 2             | 0              | 0          |
| Food Engineering                      | 13                | 6                             | 7                                               | 0                | 1          | 1          | 5            | 0            | 0             | 0              | 0          |
| Food Sciences, Other                  | 153               | 84                            | 61                                              | 0                | 14         | 3          | 40           | 0            | 1             | 3              | 0          |
| Soil Chemistry/Microbiology           | 27                | 14                            | 12                                              | 0                | 0          | 0          | 12           | 0            | 0             | 0              | 0          |
| Soil Sciences, Other                  | 74                | 25                            | 43                                              | 0                | 5          | 1          | 33           | 0            | 0             | 3              | 1          |
| Horticulture Science                  | 60                | 25                            | 29                                              | 0                | 1          | 1          | 25           | 0            | 0             | 1              | 1          |
| Forest Biology                        | 20                | 7                             | 13                                              | 0                | 0          | 1          | 12           | 0            | 0             | 0              | 0          |
| Forest Engineering                    | 2                 | 1                             | 1                                               | 0                | 1          | 0          | 0            | 0            | 0             | 0              | 0          |
| Forest Management                     | 27                | 9                             | 18                                              | 0                | 2          | 1          | 14           | 0            | 1             | 0              | 0          |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-2. Number of doctorate recipients by citizenship, race/ethnicity, and subfield, 1998

| Subfield of Doctorate                 | Total Doctorates* | Non-U.S. Citizens | U.S. Citizens and Non-U.S. with Permanent Visas |                  |            |            |              |              |               |                | Unkn. Race |
|---------------------------------------|-------------------|-------------------|-------------------------------------------------|------------------|------------|------------|--------------|--------------|---------------|----------------|------------|
|                                       |                   | Temp. Visas       | Total                                           | American Indian† | Asian‡     | Black      | White        | Puerto Rican | Mexican Amer. | Other Hispanic |            |
| Wood Sci. & Pulp/Paper Tech.          | 25                | 13                | 10                                              | 0                | 1          | 0          | 8            | 0            | 0             | 1              | 0          |
| Conservation/Renewable Nat. Res.      | 25                | 9                 | 16                                              | 0                | 0          | 1          | 12           | 0            | 0             | 2              | 1          |
| Forestry & Related Sci., Other        | 69                | 21                | 41                                              | 2                | 3          | 0          | 33           | 0            | 0             | 0              | 3          |
| Wildlife/Range Management             | 55                | 10                | 45                                              | 2                | 0          | 0          | 41           | 0            | 0             | 1              | 1          |
| Agricultural Sciences, General        | 8                 | 3                 | 4                                               | 0                | 0          | 1          | 2            | 0            | 0             | 0              | 1          |
| Agricultural Sciences, Other          | 35                | 12                | 19                                              | 0                | 0          | 2          | 14           | 0            | 1             | 1              | 1          |
| <b>SOCIAL SCIENCES (INCL. PSYCH.)</b> | <b>7,075</b>      | <b>912</b>        | <b>5,611</b>                                    | <b>42</b>        | <b>299</b> | <b>301</b> | <b>4,467</b> | <b>81</b>    | <b>89</b>     | <b>142</b>     | <b>190</b> |
| Anthropology                          | 425               | 46                | 351                                             | 5                | 18         | 11         | 272          | 1            | 10            | 10             | 24         |
| Area Studies                          | 14                | 4                 | 10                                              | 0                | 1          | 1          | 6            | 0            | 2             | 0              | 0          |
| Criminology                           | 55                | 7                 | 48                                              | 0                | 1          | 7          | 34           | 1            | 1             | 3              | 1          |
| Demography/Population Studies         | 31                | 10                | 13                                              | 0                | 0          | 1          | 11           | 0            | 1             | 0              | 0          |
| Economics                             | 973               | 396               | 480                                             | 0                | 71         | 18         | 359          | 3            | 4             | 15             | 10         |
| Econometrics                          | 25                | 16                | 9                                               | 0                | 3          | 1          | 4            | 0            | 0             | 1              | 0          |
| Geography                             | 154               | 22                | 114                                             | 0                | 5          | 3          | 103          | 1            | 0             | 2              | 0          |
| International Relations/Affairs       | 97                | 16                | 73                                              | 0                | 8          | 7          | 53           | 1            | 1             | 3              | 0          |
| Political Science and Government      | 662               | 71                | 542                                             | 3                | 26         | 32         | 446          | 2            | 12            | 9              | 12         |
| Public Policy Analysis                | 97                | 15                | 79                                              | 0                | 5          | 5          | 63           | 0            | 0             | 3              | 3          |
| Sociology                             | 549               | 81                | 427                                             | 3                | 23         | 38         | 337          | 2            | 5             | 7              | 12         |
| Statistics                            | 60                | 29                | 23                                              | 0                | 7          | 1          | 14           | 0            | 0             | 1              | 0          |
| Urban Affairs/Studies                 | 75                | 17                | 52                                              | 0                | 7          | 6          | 39           | 0            | 0             | 0              | 0          |
| Social Sciences, General              | 30                | 4                 | 24                                              | 0                | 3          | 1          | 19           | 0            | 0             | 0              | 1          |
| Social Sciences, Other                | 147               | 27                | 107                                             | 0                | 7          | 14         | 77           | 1            | 0             | 3              | 5          |
| <b>PSYCHOLOGY</b>                     | <b>3,681</b>      | <b>151</b>        | <b>3,259</b>                                    | <b>31</b>        | <b>114</b> | <b>155</b> | <b>2,630</b> | <b>69</b>    | <b>53</b>     | <b>85</b>      | <b>122</b> |
| Clinical                              | 1,350             | 19                | 1,251                                           | 15               | 45         | 56         | 1,006        | 28           | 25            | 38             | 38         |
| Cognitive & Psycholinguistics         | 113               | 21                | 88                                              | 0                | 3          | 0          | 79           | 0            | 1             | 3              | 2          |
| Comparative                           | 6                 | 0                 | 6                                               | 1                | 0          | 0          | 5            | 0            | 0             | 0              | 0          |
| Counseling                            | 448               | 10                | 423                                             | 4                | 15         | 30         | 348          | 5            | 7             | 9              | 5          |
| Developmental and Child               | 267               | 13                | 249                                             | 1                | 10         | 11         | 174          | 1            | 2             | 6              | 44         |
| Human/Indv. & Family Development      | 118               | 13                | 99                                              | 0                | 5          | 7          | 83           | 1            | 0             | 1              | 2          |
| Experimental                          | 149               | 8                 | 140                                             | 1                | 6          | 2          | 126          | 0            | 4             | 0              | 1          |
| Educational                           | 61                | 6                 | 53                                              | 0                | 0          | 5          | 43           | 0            | 2             | 1              | 2          |
| Family & Marriage Counseling          | 51                | 2                 | 48                                              | 0                | 0          | 0          | 45           | 0            | 1             | 0              | 2          |
| Industrial & Organizational           | 189               | 5                 | 172                                             | 2                | 6          | 10         | 137          | 14           | 1             | 1              | 1          |
| Personality                           | 24                | 1                 | 23                                              | 0                | 0          | 5          | 18           | 0            | 0             | 0              | 0          |
| Physiological/Psychobiology           | 92                | 13                | 77                                              | 1                | 3          | 1          | 67           | 0            | 0             | 3              | 2          |
| Psychometrics                         | 8                 | 2                 | 6                                               | 0                | 0          | 0          | 6            | 0            | 0             | 0              | 0          |
| Quantitative                          | 15                | 5                 | 10                                              | 0                | 1          | 0          | 7            | 1            | 0             | 1              | 0          |
| School                                | 106               | 0                 | 101                                             | 0                | 3          | 5          | 90           | 0            | 1             | 1              | 1          |
| Social                                | 186               | 17                | 165                                             | 2                | 7          | 7          | 137          | 1            | 4             | 2              | 5          |
| Psychology, General                   | 302               | 6                 | 202                                             | 4                | 9          | 7          | 143          | 16           | 3             | 7              | 13         |
| Psychology, Other                     | 196               | 10                | 146                                             | 0                | 1          | 9          | 116          | 2            | 2             | 12             | 4          |
| <b>HUMANITIES</b>                     | <b>5,499</b>      | <b>537</b>        | <b>4,579</b>                                    | <b>22</b>        | <b>218</b> | <b>159</b> | <b>3,820</b> | <b>38</b>    | <b>60</b>     | <b>103</b>     | <b>159</b> |
| History, American                     | 407               | 12                | 387                                             | 3                | 15         | 22         | 328          | 0            | 6             | 4              | 9          |
| History, Asian                        | 70                | 10                | 54                                              | 0                | 14         | 0          | 37           | 0            | 0             | 0              | 3          |
| History, European                     | 230               | 14                | 215                                             | 1                | 3          | 1          | 198          | 0            | 0             | 3              | 9          |
| History/Philosophy of Sci. & Tech.    | 43                | 5                 | 34                                              | 0                | 0          | 0          | 31           | 0            | 1             | 0              | 2          |
| History, General                      | 86                | 4                 | 51                                              | 0                | 0          | 2          | 35           | 2            | 1             | 2              | 9          |
| History, Other                        | 152               | 15                | 130                                             | 1                | 4          | 10         | 103          | 3            | 4             | 1              | 4          |
| Classics                              | 84                | 12                | 70                                              | 0                | 2          | 2          | 61           | 0            | 1             | 1              | 3          |
| Comparative Literature                | 162               | 29                | 124                                             | 1                | 11         | 6          | 92           | 2            | 1             | 3              | 8          |
| Linguistics                           | 219               | 66                | 136                                             | 0                | 22         | 4          | 103          | 1            | 1             | 4              | 1          |
| Speech & Rhetorical Studies           | 168               | 7                 | 153                                             | 1                | 2          | 2          | 143          | 0            | 3             | 2              | 0          |
| Letters, General                      | 22                | 2                 | 20                                              | 0                | 0          | 0          | 19           | 0            | 1             | 0              | 0          |
| Letters, Other                        | 82                | 4                 | 76                                              | 0                | 3          | 3          | 63           | 2            | 1             | 2              | 2          |
| American Studies                      | 100               | 4                 | 94                                              | 1                | 1          | 16         | 73           | 1            | 1             | 0              | 1          |
| Archaeology                           | 34                | 6                 | 27                                              | 0                | 0          | 0          | 25           | 0            | 0             | 0              | 2          |
| Art History/Criticism/Conservation    | 220               | 21                | 189                                             | 0                | 2          | 3          | 169          | 1            | 3             | 1              | 10         |
| Music                                 | 694               | 95                | 522                                             | 2                | 53         | 20         | 412          | 3            | 1             | 14             | 17         |
| Philosophy                            | 408               | 35                | 323                                             | 2                | 11         | 7          | 282          | 3            | 1             | 5              | 12         |
| Religion                              | 327               | 27                | 284                                             | 3                | 18         | 9          | 245          | 2            | 2             | 2              | 3          |
| Drama/Theater Arts                    | 91                | 7                 | 79                                              | 0                | 0          | 4          | 72           | 0            | 0             | 0              | 3          |
| <b>LANGUAGE &amp; LITERATURE</b>      | <b>1,718</b>      | <b>148</b>        | <b>1,466</b>                                    | <b>7</b>         | <b>49</b>  | <b>37</b>  | <b>1,218</b> | <b>18</b>    | <b>32</b>     | <b>58</b>      | <b>47</b>  |
| American                              | 388               | 12                | 374                                             | 1                | 12         | 21         | 318          | 3            | 10            | 3              | 6          |
| English                               | 688               | 44                | 597                                             | 3                | 20         | 11         | 531          | 1            | 8             | 3              | 20         |
| French                                | 137               | 12                | 119                                             | 1                | 2          | 2          | 100          | 1            | 1             | 3              | 9          |
| German                                | 106               | 19                | 84                                              | 0                | 2          | 0          | 79           | 0            | 0             | 1              | 2          |
| Italian                               | 33                | 7                 | 20                                              | 0                | 0          | 0          | 16           | 0            | 1             | 1              | 2          |
| Spanish                               | 207               | 40                | 152                                             | 1                | 4          | 2          | 77           | 13           | 10            | 44             | 1          |
| Russian                               | 43                | 4                 | 38                                              | 0                | 0          | 0          | 36           | 0            | 0             | 0              | 2          |
| Slavic                                | 15                | 0                 | 11                                              | 1                | 0          | 0          | 9            | 0            | 0             | 0              | 1          |
| Chinese                               | 18                | 3                 | 13                                              | 0                | 4          | 1          | 8            | 0            | 0             | 0              | 0          |
| Japanese                              | 11                | 0                 | 11                                              | 0                | 3          | 0          | 8            | 0            | 0             | 0              | 0          |
| Hebrew                                | 8                 | 1                 | 7                                               | 0                | 0          | 0          | 6            | 0            | 0             | 0              | 1          |
| Arabic                                | 9                 | 0                 | 8                                               | 0                | 1          | 0          | 5            | 0            | 0             | 1              | 1          |
| Other Language & Literature           | 55                | 6                 | 32                                              | 0                | 1          | 0          | 25           | 0            | 2             | 2              | 2          |
| Humanities, General                   | 23                | 0                 | 23                                              | 0                | 0          | 3          | 19           | 0            | 0             | 0              | 1          |
| Humanities, Other                     | 159               | 14                | 122                                             | 0                | 8          | 8          | 92           | 0            | 0             | 1              | 13         |
| <b>EDUCATION</b>                      | <b>6,559</b>      | <b>424</b>        | <b>5,700</b>                                    | <b>50</b>        | <b>180</b> | <b>646</b> | <b>4,390</b> | <b>71</b>    | <b>114</b>    | <b>97</b>      | <b>152</b> |
| Curriculum & Instruction              | 885               | 71                | 766                                             | 7                | 23         | 57         | 613          | 18           | 21            | 15             | 12         |
| Educational Admin. & Supervision      | 949               | 37                | 867                                             | 9                | 9          | 129        | 670          | 10           | 14            | 14             | 12         |
| Educational Leadership                | 1,114             | 23                | 1,043                                           | 8                | 23         | 166        | 755          | 5            | 28            | 15             | 43         |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates



APPENDIX TABLE A-2. Number of doctorate recipients by citizenship, race/ethnicity, and subfield, 1998

| Subfield of Doctorate                 | Total Doctorates* | Non-U.S. Citizens Temp. Visas | U.S. Citizens and Non-U.S. with Permanent Visas |                  |            |            |              |              |               |                |            |
|---------------------------------------|-------------------|-------------------------------|-------------------------------------------------|------------------|------------|------------|--------------|--------------|---------------|----------------|------------|
|                                       |                   |                               | Total                                           | American Indian† | Asian‡     | Black      | White        | Puerto Rican | Mexican Amer. | Other Hispanic | Unkn. Race |
| Educ./Instruct. Media Design          | 91                | 7                             | 80                                              | 0                | 5          | 6          | 67           | 0            | 1             | 0              | 1          |
| Educ. Stat./Research Methods          | 56                | 8                             | 48                                              | 0                | 5          | 5          | 36           | 1            | 0             | 1              | 0          |
| Educ. Assess., Test., & Meas.         | 35                | 5                             | 30                                              | 0                | 5          | 1          | 23           | 0            | 0             | 0              | 1          |
| Educational Psychology                | 325               | 26                            | 275                                             | 1                | 12         | 14         | 227          | 2            | 6             | 5              | 8          |
| School Psychology                     | 112               | 5                             | 107                                             | 1                | 0          | 8          | 90           | 3            | 3             | 1              | 1          |
| Social/Phil. Found. Of Educ.          | 129               | 13                            | 110                                             | 1                | 6          | 20         | 73           | 0            | 5             | 4              | 1          |
| Special Education                     | 248               | 18                            | 224                                             | 3                | 9          | 24         | 175          | 2            | 4             | 4              | 3          |
| Counseling Educ./Couns. & Guidance    | 269               | 12                            | 246                                             | 3                | 3          | 25         | 201          | 8            | 3             | 0              | 3          |
| Higher Educ./Evaluation & Research    | 430               | 22                            | 402                                             | 3                | 15         | 65         | 302          | 4            | 4             | 5              | 4          |
| Pre-elementary/Early Childhood        | 54                | 7                             | 47                                              | 0                | 1          | 6          | 39           | 0            | 0             | 0              | 1          |
| Elementary Education                  | 62                | 5                             | 52                                              | 2                | 2          | 6          | 39           | 0            | 1             | 1              | 1          |
| Secondary Education                   | 55                | 2                             | 52                                              | 0                | 0          | 4          | 27           | 0            | 1             | 1              | 19         |
| Adult & Continuing Education          | 168               | 11                            | 147                                             | 2                | 6          | 7          | 124          | 1            | 0             | 5              | 2          |
| <b>TEACHING FIELDS</b>                | <b>951</b>        | <b>122</b>                    | <b>789</b>                                      | <b>7</b>         | <b>32</b>  | <b>63</b>  | <b>636</b>   | <b>13</b>    | <b>11</b>     | <b>14</b>      | <b>13</b>  |
| Agricultural Education                | 25                | 8                             | 15                                              | 2                | 0          | 2          | 11           | 0            | 0             | 0              | 0          |
| Art Education                         | 46                | 9                             | 32                                              | 1                | 0          | 2          | 26           | 1            | 0             | 1              | 1          |
| Business Education                    | 30                | 2                             | 26                                              | 1                | 0          | 1          | 23           | 0            | 0             | 1              | 0          |
| English Education                     | 53                | 5                             | 48                                              | 0                | 4          | 8          | 33           | 3            | 0             | 0              | 0          |
| Foreign Languages Education           | 73                | 19                            | 50                                              | 0                | 8          | 3          | 30           | 3            | 1             | 3              | 2          |
| Health Education                      | 70                | 2                             | 67                                              | 0                | 3          | 7          | 53           | 0            | 3             | 0              | 1          |
| Home Economics Education              | 8                 | 0                             | 8                                               | 0                | 0          | 1          | 7            | 0            | 0             | 0              | 0          |
| Technical/Industrial Arts Education   | 30                | 1                             | 29                                              | 0                | 1          | 3          | 22           | 0            | 0             | 1              | 2          |
| Mathematics Education                 | 115               | 12                            | 98                                              | 0                | 3          | 10         | 80           | 0            | 3             | 2              | 0          |
| Music Education                       | 94                | 7                             | 85                                              | 0                | 2          | 5          | 70           | 0            | 2             | 3              | 3          |
| Nursing Education                     | 14                | 0                             | 14                                              | 0                | 0          | 2          | 11           | 0            | 1             | 0              | 0          |
| Physical Education and Coaching       | 108               | 21                            | 81                                              | 1                | 3          | 3          | 71           | 2            | 0             | 0              | 1          |
| Reading Education                     | 77                | 6                             | 70                                              | 0                | 1          | 6          | 58           | 2            | 1             | 2              | 0          |
| Science Education                     | 109               | 18                            | 88                                              | 1                | 5          | 1          | 76           | 2            | 0             | 1              | 2          |
| Social Science Education              | 15                | 3                             | 9                                               | 0                | 0          | 0          | 9            | 0            | 0             | 0              | 0          |
| Technical Education                   | 18                | 3                             | 14                                              | 1                | 0          | 1          | 12           | 0            | 0             | 0              | 0          |
| Trade & Industrial Education          | 14                | 2                             | 11                                              | 0                | 1          | 0          | 10           | 0            | 0             | 0              | 0          |
| Teacher Ed./Spec. Acad. & Voc., Other | 52                | 4                             | 44                                              | 0                | 1          | 8          | 34           | 0            | 0             | 0              | 1          |
| Education, General                    | 235               | 5                             | 121                                             | 1                | 10         | 15         | 69           | 1            | 4             | 2              | 19         |
| Education, Other                      | 391               | 25                            | 294                                             | 2                | 14         | 25         | 224          | 3            | 8             | 10             | 8          |
| <b>PROFESSIONAL/OTHER FIELDS</b>      | <b>2,352</b>      | <b>390</b>                    | <b>1,772</b>                                    | <b>18</b>        | <b>124</b> | <b>110</b> | <b>1,410</b> | <b>14</b>    | <b>14</b>     | <b>24</b>      | <b>58</b>  |
| <b>BUSINESS AND MANAGEMENT</b>        | <b>1,165</b>      | <b>248</b>                    | <b>841</b>                                      | <b>9</b>         | <b>68</b>  | <b>44</b>  | <b>665</b>   | <b>5</b>     | <b>3</b>      | <b>14</b>      | <b>33</b>  |
| Accounting                            | 154               | 26                            | 124                                             | 3                | 4          | 6          | 107          | 0            | 0             | 2              | 2          |
| Banking/Financial Support Services    | 83                | 30                            | 46                                              | 0                | 7          | 2          | 36           | 0            | 0             | 0              | 1          |
| Business Admin. & Management          | 342               | 58                            | 247                                             | 3                | 17         | 14         | 194          | 1            | 1             | 1              | 16         |
| Business/Managerial Economics         | 56                | 12                            | 41                                              | 0                | 7          | 1          | 28           | 0            | 1             | 2              | 2          |
| International Business                | 33                | 9                             | 24                                              | 0                | 2          | 1          | 20           | 0            | 0             | 1              | 0          |
| Mgmt. Info. Sys./Bus. Data Proc.      | 86                | 26                            | 52                                              | 0                | 8          | 2          | 39           | 1            | 0             | 2              | 0          |
| Marketing Management & Research       | 143               | 33                            | 106                                             | 1                | 11         | 4          | 84           | 2            | 1             | 1              | 2          |
| Operations Research                   | 57                | 29                            | 26                                              | 1                | 4          | 0          | 18           | 0            | 0             | 2              | 1          |
| Organizational Behavior               | 103               | 9                             | 92                                              | 0                | 6          | 5          | 77           | 0            | 0             | 1              | 3          |
| Bus. Mgmt./Admin. Serv., General      | 36                | 4                             | 28                                              | 0                | 0          | 4          | 21           | 0            | 0             | 0              | 3          |
| Bus. Mgmt./Admin. Serv., Other        | 72                | 12                            | 55                                              | 1                | 2          | 5          | 41           | 1            | 0             | 2              | 3          |
| <b>COMMUNICATIONS</b>                 | <b>372</b>        | <b>43</b>                     | <b>307</b>                                      | <b>2</b>         | <b>14</b>  | <b>23</b>  | <b>253</b>   | <b>2</b>     | <b>4</b>      | <b>2</b>       | <b>7</b>   |
| Communications Research               | 52                | 5                             | 47                                              | 0                | 3          | 2          | 38           | 1            | 2             | 1              | 0          |
| Mass Communications                   | 141               | 28                            | 109                                             | 2                | 6          | 9          | 88           | 0            | 1             | 1              | 2          |
| Communications Theory                 | 48                | 1                             | 46                                              | 0                | 3          | 1          | 40           | 1            | 0             | 0              | 1          |
| Communications, General               | 62                | 6                             | 46                                              | 0                | 1          | 3          | 41           | 0            | 0             | 0              | 1          |
| Communications, Other                 | 69                | 3                             | 59                                              | 0                | 1          | 8          | 46           | 0            | 1             | 0              | 3          |
| <b>OTHER PROFESSIONAL FIELDS</b>      | <b>721</b>        | <b>89</b>                     | <b>596</b>                                      | <b>7</b>         | <b>41</b>  | <b>42</b>  | <b>471</b>   | <b>7</b>     | <b>6</b>      | <b>8</b>       | <b>14</b>  |
| Architectural Environmental Design    | 51                | 19                            | 24                                              | 1                | 3          | 1          | 16           | 0            | 1             | 1              | 1          |
| Home Economics                        | 17                | 1                             | 15                                              | 0                | 0          | 2          | 11           | 1            | 0             | 0              | 1          |
| Law                                   | 31                | 13                            | 14                                              | 1                | 1          | 0          | 11           | 0            | 0             | 1              | 0          |
| Library Science                       | 34                | 2                             | 31                                              | 0                | 3          | 3          | 25           | 0            | 0             | 0              | 0          |
| Parks/Recreation/Leisure/Fitness      | 36                | 7                             | 25                                              | 0                | 2          | 0          | 18           | 2            | 0             | 1              | 2          |
| Public Administration                 | 105               | 11                            | 88                                              | 0                | 3          | 10         | 67           | 0            | 2             | 2              | 4          |
| Social Work                           | 236               | 17                            | 210                                             | 3                | 12         | 18         | 168          | 3            | 3             | 2              | 1          |
| Theology/Religious Education          | 160               | 14                            | 143                                             | 1                | 13         | 4          | 121          | 1            | 0             | 1              | 2          |
| Professional Fields, General          | 0                 | 0                             | 0                                               | 0                | 0          | 0          | 0            | 0            | 0             | 0              | 0          |
| Professional Fields, Other            | 51                | 5                             | 46                                              | 1                | 4          | 4          | 34           | 0            | 0             | 0              | 3          |
| <b>OTHER/UNKNOWN FIELDS</b>           | <b>94</b>         | <b>10</b>                     | <b>28</b>                                       | <b>0</b>         | <b>1</b>   | <b>1</b>   | <b>21</b>    | <b>0</b>     | <b>1</b>      | <b>0</b>       | <b>4</b>   |

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.

\*Includes 3,127 individuals who did not report their citizenship at time of doctorate. See the "Important Notice" for discussion of item response rate issues.

†Includes Pacific Islander.

‡Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3a. Statistical profile of doctorate recipients by major field, 1998

Total all doctorates

|                                                   |     | 1998<br>Total        | Physics and<br>Astronomy | Chemistry    | Earth, Atmos.,<br>and Marine Sci. | Mathematics  | Computer<br>Sciences | PHYSICAL<br>SCIENCES# | ENGINEERING         | Biochemistry | Other<br>Biosciences | Health Sciences | Agricultural<br>Sciences | LIFE SCIENCES       |
|---------------------------------------------------|-----|----------------------|--------------------------|--------------|-----------------------------------|--------------|----------------------|-----------------------|---------------------|--------------|----------------------|-----------------|--------------------------|---------------------|
| <b>Number in Field</b>                            |     | <b><u>42,683</u></b> | <b>1,584</b>             | <b>2,217</b> | <b>838</b>                        | <b>1,177</b> | <b>923</b>           | <b><u>6,739</u></b>   | <b><u>5,919</u></b> | <b>798</b>   | <b>5,050</b>         | <b>1,500</b>    | <b>1,192</b>             | <b><u>8,540</u></b> |
| Men                                               | %   | 57.8                 | 85.5                     | 68.1         | 72.2                              | 74.1         | 82.7                 | 75.7                  | 86.3                | 56.1         | 56.4                 | 32.5            | 71.6                     | 54.3                |
| Women                                             |     | 41.8                 | 14.1                     | 31.3         | 27.2                              | 25.2         | 17.0                 | 23.7                  | 13.0                | 43.7         | 43.2                 | 67.1            | 28.3                     | 45.4                |
| Unknown*                                          |     | 0.4                  | 0.4                      | 0.5          | 0.6                               | 0.7          | 0.3                  | 0.5                   | 0.7                 | 0.1          | 0.3                  | 0.4             | 0.1                      | 0.3                 |
| U.S. Citizenship                                  | %   | 66.1                 | 52.5                     | 57.5         | 61.2                              | 48.7         | 50.6                 | 54.3                  | 43.0                | 57.8         | 64.7                 | 69.0            | 44.2                     | 61.9                |
| Non-U.S., Permanent Visa                          |     | 6.3                  | 8.2                      | 8.1          | 7.6                               | 7.9          | 9.1                  | 8.2                   | 8.1                 | 11.7         | 9.1                  | 5.4             | 8.2                      | 8.6                 |
| Non-U.S., Temporary Visa                          |     | 20.2                 | 31.5                     | 27.5         | 24.3                              | 35.6         | 33.5                 | 30.3                  | 40.4                | 24.4         | 20.5                 | 15.9            | 40.0                     | 22.8                |
| Unknown                                           |     | 7.3                  | 7.8                      | 6.9          | 6.8                               | 7.8          | 6.8                  | 7.2                   | 8.5                 | 6.1          | 5.7                  | 9.7             | 7.6                      | 6.7                 |
| Never Married                                     | %   | 26.3                 | 38.9                     | 33.4         | 27.3                              | 36.4         | 27.2                 | 33.6                  | 31.3                | 28.9         | 30.3                 | 19.8            | 19.3                     | 26.8                |
| Married                                           |     | 53.6                 | 44.8                     | 51.7         | 56.4                              | 48.1         | 55.9                 | 50.6                  | 55.0                | 56.6         | 53.5                 | 56.5            | 66.9                     | 56.2                |
| Separated, Divorced                               |     | 5.9                  | 2.8                      | 2.5          | 4.4                               | 2.8          | 4.3                  | 3.1                   | 2.3                 | 2.6          | 4.0                  | 7.7             | 4.2                      | 4.6                 |
| Marriage-like Relationship                        |     | 3.8                  | 4.0                      | 3.9          | 4.1                               | 3.7          | 2.7                  | 3.7                   | 2.7                 | 4.1          | 4.4                  | 2.7             | 1.8                      | 3.7                 |
| Widowed                                           |     | 0.3                  | 0.0                      | 0.0          | 0.1                               | 0.2          | 0.0                  | 0.0                   | 0.1                 | 0.0          | 0.1                  | 0.4             | 0.1                      | 0.1                 |
| Unknown                                           |     | 10.1                 | 9.5                      | 8.5          | 7.6                               | 8.9          | 9.9                  | 8.9                   | 8.7                 | 7.6          | 7.7                  | 12.9            | 7.8                      | 8.6                 |
| Median Age at Doct.                               | Yrs | 33.7                 | 30.1                     | 29.6         | 33.7                              | 30.7         | 33.2                 | 30.7                  | 31.6                | 30.4         | 31.3                 | 38.5            | 34.6                     | 32.3                |
| Percent with Bacc. In<br>Same Field as Doctorate  | %   | 51.8                 | 69.8                     | 71.3         | 48.6                              | 65.7         | 36.3                 | 62.4                  | 71.0                | 28.3         | 53.9                 | 43.7            | 47.6                     | 48.9                |
| Percent with Masters                              | %   | 73.5                 | 65.5                     | 38.9         | 74.3                              | 71.9         | 81.4                 | 61.1                  | 82.3                | 33.3         | 42.9                 | 78.8            | 85.8                     | 54.3                |
| Median Time Lapse<br>from Bacc. To Doct.          |     |                      |                          |              |                                   |              |                      |                       |                     |              |                      |                 |                          |                     |
| Total Time                                        | Yrs | 10.4                 | 7.6                      | 6.8          | 10.5                              | 8.0          | 10.4                 | 8.0                   | 8.9                 | 8.0          | 8.3                  | 14.8            | 11.0                     | 9.1                 |
| Registered Time                                   |     | 7.3                  | 6.9                      | 6.0          | 7.5                               | 6.7          | 7.6                  | 6.7                   | 6.7                 | 6.8          | 6.9                  | 8.0             | 7.0                      | 7.0                 |
| Postdoctoral Study Plans                          | %   | 24.4                 | 47.3                     | 47.5         | 40.7                              | 24.8         | 12.6                 | 37.9                  | 18.8                | 70.6         | 65.4                 | 16.4            | 31.7                     | 52.6                |
| Fellowship                                        |     | 12.9                 | 17.0                     | 21.0         | 17.8                              | 13.3         | 3.7                  | 16.0                  | 6.0                 | 43.9         | 40.5                 | 9.9             | 10.2                     | 31.2                |
| Research Assoc.                                   |     | 9.5                  | 29.3                     | 25.2         | 22.1                              | 10.0         | 7.8                  | 20.7                  | 11.5                | 20.8         | 19.7                 | 5.1             | 19.8                     | 17.2                |
| Traineeship                                       |     | 0.8                  | 0.5                      | 0.5          | 0.7                               | 0.8          | 0.8                  | 0.6                   | 0.8                 | 1.0          | 1.2                  | 0.7             | 1.0                      | 1.1                 |
| Other Study                                       |     | 1.1                  | 0.5                      | 0.7          | 0.1                               | 0.7          | 0.3                  | 0.5                   | 0.6                 | 4.9          | 4.0                  | 0.7             | 0.7                      | 3.0                 |
| Planned Employment<br>After Doctorate             | %   | 63.3                 | 41.9                     | 42.2         | 49.4                              | 63.6         | 77.2                 | 51.6                  | 70.1                | 20.4         | 25.9                 | 68.7            | 57.1                     | 37.3                |
| Educ. Institution**                               |     | 32.3                 | 7.1                      | 7.4          | 15.8                              | 32.6         | 25.1                 | 15.2                  | 10.7                | 4.8          | 9.0                  | 35.9            | 20.3                     | 14.9                |
| Industry/Business                                 |     | 17.7                 | 26.6                     | 30.2         | 20.9                              | 22.6         | 43.6                 | 28.7                  | 48.0                | 9.4          | 7.8                  | 11.8            | 18.0                     | 10.1                |
| Government                                        |     | 4.5                  | 3.4                      | 1.8          | 5.8                               | 2.9          | 4.3                  | 3.2                   | 7.0                 | 0.9          | 2.6                  | 7.9             | 10.7                     | 4.5                 |
| Nonprofit                                         |     | 3.0                  | 0.5                      | 0.3          | 1.3                               | 1.0          | 1.2                  | 0.7                   | 1.3                 | 0.5          | 1.0                  | 6.5             | 2.7                      | 2.1                 |
| Other & Unknown                                   |     | 5.7                  | 4.4                      | 2.5          | 5.6                               | 4.5          | 3.0                  | 3.8                   | 3.2                 | 4.9          | 5.6                  | 6.7             | 5.4                      | 5.7                 |
| Postdoc. Plans Unknown                            | %   | 12.4                 | 10.7                     | 10.3         | 9.9                               | 11.6         | 10.2                 | 10.6                  | 11.0                | 9.0          | 8.7                  | 14.9            | 11.2                     | 10.2                |
| Definite Postdoc. Study                           | %   | 17.7                 | 38.1                     | 38.0         | 29.5                              | 17.5         | 9.1                  | 29.4                  | 12.2                | 55.0         | 49.7                 | 11.7            | 19.2                     | 39.3                |
| Seeking Postdoc. Study                            |     | 6.6                  | 9.3                      | 9.5          | 11.2                              | 7.3          | 3.5                  | 8.4                   | 6.6                 | 15.5         | 15.6                 | 4.7             | 12.5                     | 13.3                |
| Definite Employment                               |     | 43.1                 | 26.4                     | 28.6         | 32.1                              | 42.0         | 55.7                 | 34.6                  | 49.5                | 12.0         | 16.6                 | 50.6            | 36.6                     | 24.9                |
| Seeking Employment                                |     | 20.1                 | 15.5                     | 13.6         | 17.3                              | 21.7         | 21.6                 | 17.0                  | 20.6                | 8.4          | 9.3                  | 18.1            | 20.6                     | 12.3                |
| <b>Employment Commitments<br/>After Doctorate</b> |     | <b><u>18,409</u></b> | <b>418</b>               | <b>635</b>   | <b>269</b>                        | <b>494</b>   | <b>514</b>           | <b><u>2,330</u></b>   | <b><u>2,930</u></b> | <b>96</b>    | <b>837</b>           | <b>759</b>      | <b>436</b>               | <b><u>2,128</u></b> |
| Primary Activity+<br>R & D                        | %   | 31.8                 | 61.5                     | 70.1         | 47.6                              | 37.9         | 62.1                 | 57.3                  | 72.0                | 42.7         | 36.8                 | 31.1            | 50.2                     | 37.8                |
| Teaching                                          |     | 36.6                 | 13.9                     | 17.2         | 24.2                              | 43.9         | 24.3                 | 24.6                  | 9.7                 | 15.6         | 23.8                 | 40.7            | 22.2                     | 29.1                |
| Administration                                    |     | 12.0                 | 1.7                      | 1.3          | 1.9                               | 0.8          | 3.1                  | 1.7                   | 2.2                 | 3.1          | 4.2                  | 8.6             | 5.0                      | 5.9                 |
| Prof. Services                                    |     | 13.8                 | 14.8                     | 6.1          | 17.5                              | 9.5          | 7.4                  | 10.0                  | 11.2                | 17.7         | 16.2                 | 13.6            | 15.1                     | 15.1                |
| Other                                             |     | 1.9                  | 3.1                      | 1.4          | 4.1                               | 2.0          | 1.6                  | 2.2                   | 2.3                 | 2.1          | 1.7                  | 1.4             | 3.4                      | 2.0                 |
| Secondary Activity<br>R & D                       | %   | 34.0                 | 26.8                     | 21.3         | 34.2                              | 45.5         | 28.6                 | 30.5                  | 21.3                | 26.0         | 27.5                 | 38.1            | 31.9                     | 32.1                |
| Teaching                                          |     | 17.5                 | 6.7                      | 6.8          | 13.4                              | 16.4         | 16.0                 | 11.6                  | 13.9                | 8.3          | 15.2                 | 18.1            | 20.9                     | 17.1                |
| Administration                                    |     | 14.4                 | 16.5                     | 26.5         | 13.0                              | 5.9          | 12.5                 | 15.7                  | 19.3                | 17.7         | 14.0                 | 15.3            | 14.2                     | 14.7                |
| Prof. Services                                    |     | 14.2                 | 16.5                     | 15.1         | 16.7                              | 11.9         | 12.3                 | 14.2                  | 16.9                | 12.5         | 12.5                 | 15.0            | 14.9                     | 13.9                |
| Other                                             |     | 1.4                  | 0.7                      | 0.8          | 3.7                               | 0.8          | 1.2                  | 1.2                   | 1.7                 | 1.0          | 1.0                  | 1.2             | 1.6                      | 1.2                 |
| No Secondary Activity                             |     | 14.8                 | 27.8                     | 26.0         | 14.5                              | 13.8         | 28.0                 | 22.8                  | 24.3                | 16.7         | 12.9                 | 7.8             | 12.6                     | 11.2                |
| Activity(ies) Unknown                             | %   | 3.8                  | 5.0                      | 3.6          | 4.5                               | 5.7          | 1.6                  | 3.9                   | 2.6                 | 17.7         | 17.0                 | 4.6             | 3.9                      | 9.9                 |
| Region of Employment<br>After Doctorate+          |     |                      |                          |              |                                   |              |                      |                       |                     |              |                      |                 |                          |                     |
| New England                                       | %   | 6.4                  | 6.7                      | 10.1         | 3.0                               | 5.3          | 7.4                  | 7.0                   | 6.3                 | 8.3          | 7.9                  | 6.2             | 2.8                      | 6.3                 |
| Middle Atlantic                                   |     | 14.2                 | 15.3                     | 21.1         | 9.3                               | 14.0         | 19.6                 | 16.9                  | 12.5                | 16.7         | 14.5                 | 9.9             | 7.1                      | 11.4                |
| East No. Central                                  |     | 13.3                 | 12.7                     | 15.3         | 6.3                               | 16.6         | 8.4                  | 12.5                  | 11.9                | 15.6         | 11.8                 | 14.4            | 9.9                      | 12.5                |
| West No. Central                                  |     | 6.8                  | 4.1                      | 6.8          | 2.2                               | 8.5          | 4.9                  | 5.7                   | 4.4                 | 3.1          | 6.5                  | 7.9             | 10.1                     | 7.6                 |
| South Atlantic                                    |     | 16.0                 | 12.9                     | 13.4         | 15.6                              | 16.4         | 14.8                 | 14.5                  | 11.6                | 16.7         | 15.9                 | 18.4            | 7.8                      | 15.2                |
| East So. Central                                  |     | 4.3                  | 2.4                      | 2.5          | 1.1                               | 4.7          | 2.5                  | 2.8                   | 2.5                 | 1.0          | 3.7                  | 5.4             | 4.6                      | 4.4                 |
| West So. Central                                  |     | 8.4                  | 7.2                      | 6.5          | 21.2                              | 6.9          | 6.4                  | 8.4                   | 9.2                 | 7.3          | 5.5                  | 9.1             | 6.0                      | 7.0                 |
| Mountain                                          |     | 5.3                  | 6.0                      | 3.1          | 11.5                              | 5.3          | 3.5                  | 5.2                   | 5.5                 | 6.3          | 5.1                  | 4.3             | 7.3                      | 5.4                 |
| Pacific & Insular                                 |     | 13.9                 | 25.9                     | 12.4         | 17.5                              | 9.9          | 23.9                 | 17.4                  | 22.8                | 12.5         | 15.5                 | 10.5            | 9.9                      | 12.5                |
| U.S., Region Unknown                              |     | 0.8                  | 0.2                      | 0.6          | 1.5                               | 0.6          | 1.0                  | 0.7                   | 0.5                 | 2.1          | 1.8                  | 1.1             | 1.1                      | 1.4                 |
| Foreign                                           |     | 9.9                  | 5.8                      | 7.1          | 10.4                              | 11.4         | 7.0                  | 8.1                   | 12.2                | 9.4          | 11.0                 | 11.7            | 32.8                     | 15.6                |
| Region Unknown                                    |     | 0.7                  | 0.7                      | 1.1          | 0.4                               | 0.4          | 0.6                  | 0.7                   | 0.8                 | 1.0          | 0.8                  | 1.1             | 0.7                      | 0.9                 |

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. #Physical Sciences includes Mathematics and Computer Sciences, as well as Physics/Astronomy, Chemistry, and Earth/Atmospheric/Marine Sciences  
SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3a. Statistical profile of doctorate recipients by major field, 1998

Total all doctorates

| Psychology   | Economics  | Anthropology and Sociology | Political Sci./ International Rel. | Other Social Sciences | SOCIAL SCI. INCL. PSYCH. | TOTAL SCIENCES & ENGINEERING | History    | Eng. and Amer. Lang. And Lit. | Foreign Lang. and Lit. | Other Humanities | HUMANITIES   | EDUCATION    | Business and Management | Other Professional Fields | Other Fields/ Unknown*** | PROFESSIONAL/OTHER FIELDS | TOTAL NONSCIENCES |
|--------------|------------|----------------------------|------------------------------------|-----------------------|--------------------------|------------------------------|------------|-------------------------------|------------------------|------------------|--------------|--------------|-------------------------|---------------------------|--------------------------|---------------------------|-------------------|
| <b>3,681</b> | <b>998</b> | <b>974</b>                 | <b>759</b>                         | <b>663</b>            | <b>7,075</b>             | <b>28,273</b>                | <b>988</b> | <b>1,076</b>                  | <b>642</b>             | <b>2,793</b>     | <b>5,499</b> | <b>6,559</b> | <b>1,165</b>            | <b>1,093</b>              | <b>94</b>                | <b>2,352</b>              | <b>14,390</b>     |
| 32.7         | 72.5       | 43.7                       | 63.5                               | 55.7                  | 45.3                     | 63.9                         | 61.0       | 42.3                          | 41.6                   | 53.3             | 51.2         | 36.9         | 67.2                    | 47.9                      | 55.3                     | 57.8                      | 45.7              |
| 66.8         | 27.2       | 55.7                       | 36.4                               | 43.4                  | 54.2                     | 35.7                         | 39.0       | 57.7                          | 58.1                   | 46.4             | 48.6         | 62.8         | 32.1                    | 51.9                      | 39.4                     | 41.6                      | 54.0              |
| 0.4          | 0.3        | 0.5                        | 0.1                                | 0.9                   | 0.4                      | 0.5                          | 0.0        | 0.0                           | 0.3                    | 0.3              | 0.2          | 0.3          | 0.7                     | 0.2                       | 5.3                      | 0.6                       | 0.3               |
| 86.0         | 41.0       | 75.2                       | 76.2                               | 64.3                  | 75.1                     | 59.4                         | 84.0       | 87.9                          | 63.1                   | 73.8             | 77.1         | 84.3         | 65.7                    | 78.2                      | 26.6                     | 69.9                      | 79.3              |
| 2.5          | 8.0        | 4.7                        | 4.9                                | 6.6                   | 4.2                      | 7.3                          | 4.1        | 2.3                           | 14.0                   | 6.5              | 6.1          | 2.6          | 6.5                     | 4.4                       | 3.2                      | 5.4                       | 4.4               |
| 4.1          | 41.3       | 13.0                       | 11.5                               | 20.4                  | 12.9                     | 25.8                         | 6.1        | 5.2                           | 14.3                   | 11.8             | 9.8          | 6.5          | 21.3                    | 12.1                      | 10.6                     | 16.6                      | 9.4               |
| 7.4          | 9.7        | 7.1                        | 7.5                                | 8.7                   | 7.8                      | 7.5                          | 5.8        | 4.6                           | 8.6                    | 7.9              | 7.0          | 6.6          | 6.5                     | 5.3                       | 59.6                     | 8.1                       | 6.9               |
| 26.8         | 32.5       | 24.4                       | 25.6                               | 24.4                  | 26.9                     | 29.4                         | 24.0       | 27.5                          | 26.3                   | 28.1             | 27.1         | 14.2         | 20.0                    | 22.9                      | 5.3                      | 20.7                      | 20.2              |
| 44.5         | 51.2       | 52.4                       | 53.5                               | 55.4                  | 48.5                     | 52.7                         | 56.4       | 47.7                          | 48.9                   | 49.3             | 50.2         | 59.6         | 57.4                    | 56.7                      | 14.9                     | 55.4                      | 55.4              |
| 7.0          | 3.8        | 9.3                        | 6.5                                | 6.2                   | 6.7                      | 4.3                          | 7.6        | 8.6                           | 9.5                    | 6.4              | 7.4          | 10.9         | 7.5                     | 9.1                       | 2.1                      | 8.0                       | 9.1               |
| 5.4          | 3.5        | 5.4                        | 4.6                                | 4.2                   | 4.9                      | 3.8                          | 4.9        | 8.2                           | 6.5                    | 5.1              | 5.8          | 2.6          | 3.0                     | 3.1                       | 2.1                      | 3.0                       | 3.9               |
| 0.2          | 0.4        | 0.1                        | 0.1                                | 0.8                   | 0.3                      | 0.1                          | 0.3        | 0.4                           | 0.5                    | 0.2              | 0.3          | 0.9          | 0.1                     | 0.8                       | 0.0                      | 0.4                       | 0.6               |
| 16.2         | 8.6        | 8.3                        | 9.7                                | 9.0                   | 12.7                     | 9.7                          | 6.9        | 7.6                           | 8.3                    | 10.9             | 9.2          | 12.0         | 12.0                    | 7.4                       | 75.5                     | 12.4                      | 10.9              |
| 32.5         | 31.8       | 35.1                       | 33.0                               | 36.0                  | 33.2                     | 31.9                         | 34.8       | 34.4                          | 34.6                   | 35.6             | 35.1         | 44.3         | 36.0                    | 39.3                      | 37.7                     | 37.5                      | 39.2              |
| 58.5         | 56.2       | 73.9                       | 52.7                               | 21.3                  | 56.2                     | 58.6                         | 51.7       | 64.1                          | 0.0                    | 49.3             | 46.9         | 35.0         | 33.0                    | 27.9                      | 8.5                      | 29.6                      | 38.7              |
| 74.7         | 71.8       | 86.1                       | 78.3                               | 87.3                  | 77.5                     | 67.6                         | 83.6       | 83.7                          | 83.3                   | 82.7             | 83.2         | 87.7         | 79.8                    | 90.9                      | 27.7                     | 82.9                      | 85.3              |
| 9.0          | 9.0        | 11.0                       | 10.0                               | 12.5                  | 9.9                      | 9.0                          | 11.5       | 11.0                          | 11.0                   | 12.0             | 11.6         | 20.0         | 12.6                    | 15.3                      | 12.9                     | 13.7                      | 14.9              |
| 7.1          | 7.0        | 8.7                        | 7.9                                | 8.0                   | 7.5                      | 7.0                          | 8.6        | 8.4                           | 8.4                    | 8.9              | 8.7          | 8.4          | 7.7                     | 8.0                       | 7.5                      | 8.0                       | 8.4               |
| 28.0         | 6.6        | 17.6                       | 10.1                               | 13.1                  | 20.2                     | 33.9                         | 9.2        | 6.6                           | 7.5                    | 6.7              | 7.2          | 4.7          | 3.9                     | 5.8                       | 3.2                      | 4.8                       | 5.7               |
| 20.8         | 2.8        | 11.2                       | 7.0                                | 7.4                   | 14.2                     | 18.0                         | 6.2        | 4.9                           | 3.4                    | 4.0              | 4.5          | 1.8          | 1.3                     | 2.0                       | 3.2                      | 1.7                       | 2.8               |
| 4.5          | 2.8        | 5.0                        | 2.2                                | 4.5                   | 4.1                      | 13.6                         | 1.5        | 0.3                           | 2.0                    | 1.4              | 1.3          | 1.6          | 2.0                     | 2.4                       | 0.0                      | 2.1                       | 1.5               |
| 2.0          | 0.5        | 0.6                        | 0.3                                | 0.9                   | 1.3                      | 1.0                          | 0.4        | 0.2                           | 0.9                    | 0.4              | 0.4          | 0.6          | 0.3                     | 0.6                       | 0.0                      | 0.5                       | 0.5               |
| 0.6          | 0.5        | 0.7                        | 0.7                                | 0.3                   | 0.6                      | 1.3                          | 1.1        | 1.2                           | 1.1                    | 0.9              | 1.0          | 0.6          | 0.3                     | 0.7                       | 0.0                      | 0.5                       | 0.8               |
| 54.2         | 82.8       | 71.3                       | 78.4                               | 73.3                  | 65.0                     | 54.5                         | 80.1       | 83.4                          | 81.8                   | 79.3             | 80.5         | 80.5         | 82.1                    | 83.7                      | 22.3                     | 80.5                      | 80.6              |
| 21.3         | 41.6       | 48.0                       | 51.0                               | 38.0                  | 32.6                     | 18.5                         | 59.2       | 65.5                          | 63.9                   | 56.6             | 59.7         | 60.9         | 60.8                    | 50.3                      | 16.0                     | 54.1                      | 59.4              |
| 12.0         | 18.8       | 6.9                        | 7.4                                | 14.0                  | 11.9                     | 22.9                         | 6.0        | 6.5                           | 7.5                    | 8.2              | 7.4          | 6.1          | 13.4                    | 11.9                      | 1.1                      | 12.2                      | 7.6               |
| 5.9          | 13.1       | 5.2                        | 6.1                                | 8.9                   | 7.1                      | 5.4                          | 2.8        | 0.7                           | 1.1                    | 1.8              | 1.7          | 3.4          | 2.9                     | 5.4                       | 2.1                      | 4.0                       | 2.8               |
| 7.5          | 3.3        | 4.4                        | 5.4                                | 6.2                   | 6.1                      | 2.6                          | 2.3        | 1.2                           | 1.2                    | 4.5              | 3.1          | 3.9          | 1.5                     | 9.4                       | 2.1                      | 5.2                       | 3.8               |
| 7.5          | 5.9        | 6.7                        | 8.6                                | 6.2                   | 7.2                      | 5.1                          | 9.7        | 9.4                           | 8.1                    | 8.3              | 8.7          | 6.2          | 3.6                     | 6.7                       | 1.1                      | 4.9                       | 7.0               |
| 17.8         | 10.6       | 11.2                       | 11.5                               | 13.6                  | 14.8                     | 11.6                         | 10.7       | 10.0                          | 10.7                   | 14.0             | 12.2         | 14.9         | 13.9                    | 10.5                      | 74.5                     | 14.8                      | 13.7              |
| 20.6         | 4.3        | 11.1                       | 6.6                                | 8.3                   | 14.3                     | 25.0                         | 5.7        | 4.6                           | 4.2                    | 4.0              | 4.5          | 2.8          | 2.6                     | 3.1                       | 3.2                      | 2.8                       | 3.4               |
| 7.3          | 2.3        | 6.5                        | 3.6                                | 4.8                   | 5.9                      | 8.9                          | 3.5        | 2.0                           | 3.3                    | 2.6              | 2.7          | 1.9          | 1.4                     | 2.7                       | 0.0                      | 1.9                       | 2.2               |
| 36.2         | 61.4       | 44.0                       | 48.7                               | 51.4                  | 43.6                     | 37.0                         | 44.9       | 47.1                          | 47.5                   | 48.0             | 47.2         | 59.2         | 68.8                    | 58.6                      | 17.0                     | 62.0                      | 55.1              |
| 18.0         | 21.3       | 27.2                       | 29.6                               | 21.9                  | 21.4                     | 17.4                         | 35.1       | 36.2                          | 34.3                   | 31.3             | 33.3         | 21.3         | 13.4                    | 25.1                      | 5.3                      | 18.5                      | 25.5              |
| <b>1,332</b> | <b>613</b> | <b>429</b>                 | <b>370</b>                         | <b>341</b>            | <b>3,085</b>             | <b>10,473</b>                | <b>444</b> | <b>507</b>                    | <b>305</b>             | <b>1,341</b>     | <b>2,597</b> | <b>3,881</b> | <b>801</b>              | <b>641</b>                | <b>16</b>                | <b>1,458</b>              | <b>7,936</b>      |
| 19.6         | 48.6       | 26.8                       | 24.3                               | 34.3                  | 28.6                     | 49.0                         | 7.2        | 4.3                           | 4.9                    | 8.5              | 7.0          | 5.3          | 30.8                    | 12.3                      | 25.0                     | 22.6                      | 9.0               |
| 19.3         | 30.5       | 55.7                       | 55.4                               | 34.3                  | 32.6                     | 23.7                         | 75.5       | 80.3                          | 83.0                   | 70.8             | 74.9         | 40.2         | 51.9                    | 51.8                      | 43.8                     | 51.8                      | 53.7              |
| 5.8          | 4.2        | 4.7                        | 5.7                                | 11.1                  | 5.9                      | 3.9                          | 5.6        | 6.5                           | 2.6                    | 5.3              | 5.3          | 39.2         | 5.6                     | 13.9                      | 6.3                      | 9.3                       | 22.6              |
| 50.8         | 10.1       | 7.9                        | 7.6                                | 14.1                  | 27.5                     | 16.5                         | 6.8        | 3.6                           | 4.3                    | 9.3              | 7.2          | 11.2         | 7.9                     | 17.8                      | 18.8                     | 12.3                      | 10.1              |
| 1.3          | 4.1        | 2.3                        | 4.6                                | 2.6                   | 2.5                      | 2.3                          | 2.0        | 1.2                           | 2.6                    | 2.1              | 2.0          | 1.0          | 1.7                     | 1.7                       | 6.3                      | 1.8                       | 1.5               |
| 28.2         | 36.5       | 52.2                       | 51.9                               | 37.2                  | 37.1                     | 30.2                         | 61.3       | 55.4                          | 65.2                   | 46.8             | 53.1         | 26.2         | 50.2                    | 44.5                      | 43.8                     | 47.6                      | 38.9              |
| 20.1         | 24.8       | 19.3                       | 20.0                               | 17.9                  | 20.7                     | 16.0                         | 10.4       | 8.5                           | 8.9                    | 13.0             | 11.2         | 22.7         | 29.8                    | 19.5                      | 18.8                     | 25.2                      | 19.4              |
| 17.3         | 9.0        | 11.0                       | 10.3                               | 13.8                  | 13.5                     | 15.9                         | 9.7        | 12.2                          | 10.2                   | 14.4             | 12.7         | 13.5         | 6.4                     | 12.5                      | 12.5                     | 9.1                       | 12.4              |
| 15.8         | 14.2       | 6.8                        | 4.6                                | 14.4                  | 12.7                     | 14.5                         | 5.4        | 7.1                           | 4.9                    | 11.0             | 8.5          | 19.2         | 5.7                     | 13.3                      | 12.5                     | 9.1                       | 13.9              |
| 1.4          | 1.1        | 1.6                        | 2.2                                | 0.6                   | 1.4                      | 1.4                          | 0.5        | 1.6                           | 0.3                    | 3.3              | 2.1          | 1.1          | 0.2                     | 1.2                       | 0.0                      | 0.7                       | 1.4               |
| 13.9         | 12.1       | 6.8                        | 8.6                                | 12.6                  | 11.8                     | 17.6                         | 9.9        | 11.0                          | 8.2                    | 8.2              | 9.0          | 14.4         | 5.7                     | 6.6                       | 12.5                     | 6.2                       | 11.1              |
| 3.3          | 2.3        | 2.3                        | 2.4                                | 3.5                   | 2.9                      | 4.5                          | 2.9        | 4.1                           | 2.3                    | 3.4              | 3.3          | 2.9          | 1.9                     | 2.5                       | 0.0                      | 2.1                       | 2.9               |
| 6.1          | 7.8        | 9.1                        | 6.2                                | 10.3                  | 7.3                      | 6.7                          | 10.4       | 7.5                           | 7.9                    | 7.6              | 8.1          | 4.3          | 6.8                     | 5.0                       | 12.5                     | 6.0                       | 5.9               |
| 18.8         | 15.2       | 13.3                       | 16.2                               | 11.7                  | 16.2                     | 14.3                         | 15.1       | 17.2                          | 19.0                   | 14.7             | 15.7         | 12.6         | 14.8                    | 14.0                      | 6.3                      | 14.3                      | 13.9              |
| 12.5         | 8.0        | 14.2                       | 10.3                               | 13.2                  | 11.6                     | 12.1                         | 11.7       | 16.2                          | 15.7                   | 15.7             | 15.1         | 14.9         | 15.8                    | 13.3                      | 6.3                      | 14.6                      | 14.9              |
| 8.9          | 2.6        | 5.8                        | 4.3                                | 5.3                   | 6.3                      | 5.9                          | 8.1        | 7.1                           | 8.9                    | 6.4              | 7.1          | 9.1          | 6.5                     | 7.0                       | 0.0                      | 6.7                       | 8.0               |
| 15.7         | 22.0       | 11.4                       | 23.2                               | 19.6                  | 17.7                     | 14.8                         | 14.6       | 12.8                          | 13.4                   | 13.6             | 13.6         | 20.3         | 17.8                    | 17.2                      | 18.8                     | 17.5                      | 17.6              |
| 3.5          | 2.4        | 3.5                        | 4.3                                | 3.5                   | 3.4                      | 3.2                          | 5.2        | 7.3                           | 5.6                    | 4.3              | 5.2          | 6.5          | 3.5                     | 5.5                       | 6.3                      | 4.4                       | 5.7               |
| 8.7          | 4.2        | 5.1                        | 8.4                                | 5.6                   | 6.9                      | 7.9                          | 8.8        | 8.9                           | 3.9                    | 8.1              | 7.9          | 9.6          | 9.9                     | 10.0                      | 6.3                      | 9.9                       | 9.1               |
| 6.4          | 2.8        | 7.2                        | 3.5                                | 6.2                   | 5.4                      | 5.4                          | 3.6        | 4.7                           | 3.0                    | 5.7              | 4.8          | 6.1          | 3.4                     | 4.2                       | 6.3                      | 3.8                       | 5.3               |
| 15.3         | 7.8        | 14.9                       | 10.5                               | 10.3                  | 12.6                     | 16.5                         | 13.3       | 12.2                          | 10.5                   | 11.6             | 11.9         | 9.6          | 9.5                     | 11.7                      | 12.5                     | 10.5                      | 10.5              |
| 0.6          | 1.0        | 1.2                        | 1.1                                | 0.6                   | 0.8                      | 0.8                          | 0.7        | 1.4                           | 0.0                    | 1.1              | 1.0          | 0.8          | 0.5                     | 1.1                       | 0.0                      | 0.8                       | 0.8               |
| 3.1          | 25.8       | 14.2                       | 10.8                               | 12.9                  | 11.2                     | 11.7                         | 7.9        | 4.3                           | 11.1                   | 10.7             | 9.0          | 5.1          | 11.0                    | 10.6                      | 25.0                     | 11.0                      | 7.5               |
| 0.5          | 0.3        | 0.0                        | 1.1                                | 0.9                   | 0.5                      | 0.7                          | 0.7        | 0.4                           | 1.0                    | 0.5              | 0.6          | 1.0          | 0.8                     | 0.5                       | 0.0                      | 0.6                       | 0.8               |

\*Includes 174 respondents not reporting gender. \*\*Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.

\*\*\*Includes 20 respondents whose doctoral field was unknown. +Includes only recipients with definite employment plans.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3b. Statistical profile of doctorate recipients by major field, 1998

Total men

|                                                            |     | 1998<br>Total | Physics and<br>Astronomy | Chemistry    | Earth, Atmos.,<br>and Marine Sci. | Mathematics | Computer<br>Sciences | PHYSICAL<br>SCIENCES# | ENGINEERING  | Biochemistry | Other<br>Biosciences | Health Sciences | Agricultural<br>Sciences | LIFE SCIENCES |
|------------------------------------------------------------|-----|---------------|--------------------------|--------------|-----------------------------------|-------------|----------------------|-----------------------|--------------|--------------|----------------------|-----------------|--------------------------|---------------|
| <b>Total Men</b>                                           |     | <b>24,653</b> | <b>1,354</b>             | <b>1,510</b> | <b>605</b>                        | <b>872</b>  | <b>763</b>           | <b>5,104</b>          | <b>5,108</b> | <b>448</b>   | <b>2,850</b>         | <b>488</b>      | <b>854</b>               | <b>4,640</b>  |
| Men as a Percent of Total Doctorates                       | %   | 57.8          | 85.5                     | 68.1         | 72.2                              | 74.1        | 82.7                 | 75.7                  | 86.3         | 56.1         | 56.4                 | 32.5            | 71.6                     | 54.3          |
| U.S. Citizenship                                           | %   | 59.8          | 53.2                     | 58.7         | 59.3                              | 46.2        | 48.1                 | 53.6                  | 42.5         | 58.9         | 62.9                 | 53.7            | 41.7                     | 57.7          |
| Non-U.S., Permanent Visa                                   |     | 6.7           | 7.9                      | 7.2          | 6.8                               | 7.5         | 8.3                  | 7.5                   | 7.8          | 10.5         | 9.3                  | 7.6             | 7.4                      | 8.9           |
| Non-U.S., Temporary Visa                                   |     | 26.0          | 31.9                     | 27.7         | 26.8                              | 39.4        | 37.9                 | 32.2                  | 41.9         | 23.2         | 22.2                 | 26.8            | 43.2                     | 26.7          |
| Unknown                                                    |     | 7.4           | 7.0                      | 6.3          | 7.1                               | 6.9         | 5.8                  | 6.6                   | 7.9          | 7.4          | 5.6                  | 11.9            | 7.7                      | 6.8           |
| Never Married                                              | %   | 27.1          | 39.8                     | 32.6         | 26.1                              | 38.8        | 30.0                 | 34.4                  | 31.3         | 29.9         | 28.9                 | 18.9            | 14.8                     | 25.3          |
| Married                                                    |     | 56.4          | 45.1                     | 53.5         | 59.2                              | 47.2        | 57.0                 | 51.4                  | 56.5         | 55.1         | 56.1                 | 58.8            | 73.3                     | 59.5          |
| Separated, Divorced                                        |     | 3.6           | 2.7                      | 2.5          | 3.8                               | 2.6         | 2.9                  | 2.8                   | 2.0          | 2.0          | 3.5                  | 3.1             | 2.9                      | 3.2           |
| Marriage-like Relationship                                 |     | 3.4           | 3.8                      | 3.5          | 3.3                               | 3.4         | 2.5                  | 3.4                   | 2.4          | 3.3          | 3.9                  | 3.1             | 1.3                      | 3.3           |
| Widowed                                                    |     | 0.1           | 0.0                      | 0.0          | 0.2                               | 0.0         | 0.0                  | 0.0                   | 0.1          | 0.0          | 0.0                  | 0.0             | 0.1                      | 0.0           |
| Unknown                                                    |     | 9.3           | 8.6                      | 7.9          | 7.4                               | 7.9         | 7.6                  | 8.0                   | 7.8          | 9.6          | 7.5                  | 16.2            | 7.6                      | 8.7           |
| Median Age at Doct.                                        | Yrs | 33.1          | 30.1                     | 29.7         | 34.0                              | 30.6        | 32.9                 | 30.8                  | 31.7         | 30.5         | 31.7                 | 35.4            | 35.2                     | 32.3          |
| Percent with Bacc. in Same Field as Doctorate              | %   | 54.0          | 70.2                     | 71.3         | 49.6                              | 65.3        | 38.0                 | 62.4                  | 72.2         | 30.6         | 52.4                 | 25.6            | 49.9                     | 47.0          |
| Percent with Masters                                       | %   | 73.0          | 65.0                     | 40.3         | 75.2                              | 72.8        | 82.2                 | 62.8                  | 83.3         | 32.6         | 45.3                 | 70.9            | 87.4                     | 54.5          |
| Median Time Lapse from Bacc. To Total Time Registered Time | Yrs | 9.9           | 7.6                      | 6.9          | 11.0                              | 8.0         | 10.0                 | 8.0                   | 9.0          | 7.9          | 8.5                  | 12.0            | 11.5                     | 9.0           |
|                                                            |     | 7.2           | 6.9                      | 6.0          | 7.6                               | 6.6         | 7.5                  | 6.7                   | 6.7          | 6.8          | 7.0                  | 7.5             | 7.0                      | 7.0           |
| Postdoctoral Study Plans                                   | %   | 25.9          | 48.4                     | 49.0         | 41.2                              | 26.6        | 13.2                 | 38.8                  | 18.7         | 69.6         | 65.2                 | 19.3            | 30.7                     | 54.4          |
| Fellowship                                                 |     | 12.5          | 17.5                     | 21.5         | 16.7                              | 14.0        | 3.8                  | 15.9                  | 5.9          | 43.3         | 38.6                 | 9.4             | 10.1                     | 30.7          |
| Research Assoc. Traineeship                                |     | 11.5          | 30.0                     | 26.4         | 23.5                              | 11.2        | 8.3                  | 21.7                  | 11.4         | 20.5         | 20.9                 | 8.2             | 18.4                     | 19.1          |
| Other Study                                                |     | 0.8           | 0.4                      | 0.5          | 1.0                               | 0.6         | 0.8                  | 0.6                   | 0.9          | 0.7          | 1.2                  | 1.0             | 1.4                      | 1.2           |
| Planned Employment                                         |     | 1.1           | 0.5                      | 0.7          | 0.0                               | 0.8         | 0.4                  | 0.5                   | 0.5          | 5.1          | 4.6                  | 0.6             | 0.8                      | 3.5           |
| After Doctorate                                            | %   | 62.5          | 41.7                     | 40.9         | 48.9                              | 62.8        | 78.4                 | 51.4                  | 70.8         | 19.9         | 26.2                 | 62.7            | 58.2                     | 35.3          |
| Educ. Institution*                                         |     | 27.7          | 6.6                      | 6.7          | 15.2                              | 31.1        | 23.1                 | 14.3                  | 10.3         | 4.5          | 8.5                  | 28.3            | 20.7                     | 12.4          |
| Industry/Business                                          |     | 22.5          | 27.5                     | 30.0         | 22.0                              | 22.9        | 46.5                 | 29.6                  | 49.2         | 10.5         | 8.5                  | 16.0            | 17.3                     | 11.1          |
| Government                                                 |     | 5.2           | 3.4                      | 1.7          | 6.0                               | 3.0         | 4.3                  | 3.3                   | 7.3          | 0.9          | 3.0                  | 10.7            | 11.8                     | 5.2           |
| Nonprofit                                                  |     | 2.4           | 0.4                      | 0.3          | 0.7                               | 1.0         | 1.4                  | 0.7                   | 1.4          | 0.4          | 0.8                  | 3.1             | 3.0                      | 1.4           |
| Other & Unknown                                            |     | 4.7           | 3.8                      | 2.3          | 5.1                               | 4.8         | 3.0                  | 2.6                   | 2.7          | 3.6          | 5.4                  | 4.7             | 5.3                      | 5.1           |
| Postdoc. Plans Unknown                                     | %   | 11.7          | 9.8                      | 10.1         | 9.9                               | 10.6        | 8.4                  | 9.8                   | 10.5         | 10.5         | 8.6                  | 18.0            | 11.1                     | 10.3          |
| Definite Postdoc. Study                                    | %   | 18.9          | 39.0                     | 39.3         | 29.6                              | 19.0        | 9.4                  | 30.2                  | 12.2         | 56.5         | 50.1                 | 14.3            | 17.9                     | 41.0          |
| Seeking Postdoc. Study                                     |     | 7.0           | 9.5                      | 9.7          | 11.6                              | 7.6         | 3.8                  | 8.6                   | 6.5          | 13.2         | 15.1                 | 4.9             | 12.8                     | 13.4          |
| Definite Employment                                        |     | 43.2          | 27.1                     | 28.5         | 32.2                              | 40.9        | 56.6                 | 34.9                  | 50.3         | 13.6         | 17.4                 | 48.2            | 38.6                     | 24.2          |
| Seeking Employment                                         |     | 19.3          | 14.6                     | 12.4         | 16.7                              | 21.9        | 21.8                 | 16.5                  | 20.5         | 6.3          | 8.7                  | 14.5            | 19.6                     | 11.1          |
| <b>Employment Commitments After Doctorate</b>              |     | <b>10,644</b> | <b>367</b>               | <b>431</b>   | <b>195</b>                        | <b>357</b>  | <b>432</b>           | <b>1,782</b>          | <b>2,569</b> | <b>61</b>    | <b>497</b>           | <b>235</b>      | <b>330</b>               | <b>1,123</b>  |
| Primary Activity*                                          | %   | 40.6          | 62.9                     | 74.2         | 51.8                              | 40.9        | 65.7                 | 60.7                  | 72.8         | 42.6         | 39.0                 | 43.8            | 53.3                     | 44.4          |
| R & D                                                      |     | 31.2          | 12.3                     | 13.7         | 20.0                              | 40.9        | 21.5                 | 21.4                  | 9.1          | 11.5         | 19.3                 | 29.8            | 21.2                     | 21.6          |
| Teaching                                                   |     | 9.6           | 1.6                      | 1.4          | 2.1                               | 0.8         | 2.5                  | 1.7                   | 2.3          | 3.3          | 4.0                  | 7.7             | 4.2                      | 4.8           |
| Administration                                             |     | 12.6          | 15.0                     | 5.3          | 17.4                              | 9.0         | 7.2                  | 9.8                   | 11.3         | 21.3         | 17.1                 | 10.2            | 15.2                     | 15.3          |
| Prof. Services                                             |     | 2.1           | 3.0                      | 1.4          | 4.6                               | 2.0         | 1.4                  | 2.2                   | 2.0          | 1.6          | 1.8                  | 3.0             | 3.0                      | 2.4           |
| Other                                                      |     | 31.9          | 25.6                     | 19.3         | 31.8                              | 41.7        | 27.3                 | 28.4                  | 21.1         | 24.6         | 26.2                 | 35.3            | 31.5                     | 29.6          |
| Secondary Activity                                         | %   | 17.9          | 6.3                      | 7.2          | 15.9                              | 17.1        | 16.7                 | 12.2                  | 13.9         | 11.5         | 16.7                 | 20.4            | 22.4                     | 18.9          |
| R & D                                                      |     | 15.7          | 17.4                     | 31.3         | 12.8                              | 6.2         | 12.7                 | 16.9                  | 19.9         | 19.7         | 15.5                 | 18.7            | 15.2                     | 16.3          |
| Teaching                                                   |     | 14.0          | 18.0                     | 14.8         | 19.0                              | 13.2        | 12.0                 | 14.9                  | 17.0         | 9.8          | 10.5                 | 13.2            | 15.5                     | 12.5          |
| Administration                                             |     | 1.3           | 0.5                      | 0.7          | 3.1                               | 0.8         | 0.9                  | 1.0                   | 1.8          | 1.6          | 0.8                  | 1.3             | 0.9                      | 1.0           |
| Prof. Services                                             |     | 15.5          | 27.0                     | 23.2         | 13.8                              | 14.8        | 28.7                 | 22.6                  | 23.7         | 14.8         | 12.1                 | 5.5             | 11.5                     | 10.7          |
| Other                                                      |     | 3.7           | 5.2                      | 3.5          | 3.6                               | 6.2         | 1.6                  | 3.9                   | 2.5          | 18.0         | 18.3                 | 5.5             | 3.0                      | 11.1          |
| No Secondary Activity                                      |     |               |                          |              |                                   |             |                      |                       |              |              |                      |                 |                          |               |
| Activity(ies) Unknown                                      | %   |               |                          |              |                                   |             |                      |                       |              |              |                      |                 |                          |               |
| Region of Employment                                       |     |               |                          |              |                                   |             |                      |                       |              |              |                      |                 |                          |               |
| After Doctorate+                                           | %   | 6.3           | 6.8                      | 10.4         | 3.1                               | 5.3         | 7.9                  | 7.2                   | 6.2          | 4.9          | 7.2                  | 7.7             | 2.7                      | 5.9           |
| New England                                                |     | 13.5          | 15.0                     | 20.9         | 7.2                               | 13.8        | 19.0                 | 16.3                  | 12.0         | 23.0         | 14.5                 | 8.9             | 5.8                      | 11.2          |
| Middle Atlantic                                            |     | 12.8          | 12.3                     | 15.5         | 5.6                               | 16.9        | 7.6                  | 12.1                  | 12.1         | 18.0         | 10.7                 | 11.9            | 9.1                      | 10.9          |
| East No. Central                                           |     | 6.4           | 4.6                      | 7.0          | 2.6                               | 8.1         | 4.4                  | 5.6                   | 4.2          | 4.9          | 5.6                  | 8.5             | 9.7                      | 7.4           |
| West No. Central                                           |     | 14.8          | 13.1                     | 11.1         | 16.4                              | 16.0        | 14.6                 | 13.9                  | 11.6         | 13.1         | 16.1                 | 16.6            | 7.9                      | 13.6          |
| South Atlantic                                             |     | 3.9           | 2.5                      | 2.8          | 0.5                               | 5.3         | 1.6                  | 2.7                   | 2.5          | 1.6          | 3.2                  | 4.3             | 5.5                      | 4.0           |
| East So. Central                                           |     | 8.3           | 7.7                      | 6.0          | 23.6                              | 6.7         | 6.3                  | 8.5                   | 9.4          | 8.2          | 5.4                  | 9.4             | 5.2                      | 6.3           |
| West So. Central                                           |     | 5.2           | 6.3                      | 3.5          | 10.8                              | 4.8         | 3.5                  | 5.1                   | 5.5          | 8.2          | 5.8                  | 4.7             | 6.7                      | 6.0           |
| Mountain                                                   |     | 15.1          | 24.6                     | 13.9         | 17.9                              | 9.8         | 25.7                 | 18.6                  | 22.8         | 8.2          | 16.1                 | 9.8             | 9.1                      | 12.3          |
| Pacific & Insular                                          |     | 0.7           | 0.3                      | 0.7          | 0.5                               | 0.6         | 0.9                  | 0.6                   | 0.6          | 1.6          | 2.0                  | 0.9             | 1.2                      | 1.5           |
| U.S., Region Unknown                                       |     | 12.3          | 6.3                      | 6.7          | 11.3                              | 12.1        | 7.9                  | 8.5                   | 12.4         | 8.2          | 12.3                 | 16.6            | 36.4                     | 20.0          |
| Foreign                                                    |     | 0.7           | 0.5                      | 1.4          | 0.5                               | 0.6         | 0.7                  | 0.8                   | 0.7          | 0.0          | 1.0                  | 0.9             | 0.9                      | 0.9           |
| Region Unknown                                             |     |               |                          |              |                                   |             |                      |                       |              |              |                      |                 |                          |               |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3b. Statistical profile of doctorate recipients by major field, 1998

Total men

| Psychology   | Economics  | Anthropology and Sociology | Political Sci./ International Rel. | Other Social Sciences | SOCIAL SCI. INCL. PSYCH. | TOTAL SCIENCES & ENGINEERING | History    | Eng. and Amer. Lang. And Lit. | Foreign Lang. and Lit. | Other Humanities | HUMANITIES   | EDUCATION    | Business and Management | Other Professional Fields | Other Fields/ Unknown | PROFESSIONAL/ OTHER FIELDS | TOTAL NONSCIENCES |
|--------------|------------|----------------------------|------------------------------------|-----------------------|--------------------------|------------------------------|------------|-------------------------------|------------------------|------------------|--------------|--------------|-------------------------|---------------------------|-----------------------|----------------------------|-------------------|
| <b>1,205</b> | <b>724</b> | <b>426</b>                 | <b>482</b>                         | <b>369</b>            | <b>3,206</b>             | <b>18,058</b>                | <b>603</b> | <b>455</b>                    | <b>267</b>             | <b>1,489</b>     | <b>2,814</b> | <b>2,422</b> | <b>783</b>              | <b>524</b>                | <b>52</b>             | <b>1,359</b>               | <b>6,582</b>      |
| 32.7         | 72.5       | 43.7                       | 63.5                               | 55.7                  | 45.3                     | 63.9                         | 61.0       | 42.3                          | 41.6                   | 53.3             | 51.2         | 36.9         | 67.2                    | 47.9                      | 55.3                  | 57.8                       | 45.7              |
| 84.4         | 39.8       | 70.9                       | 73.4                               | 59.9                  | 68.1                     | 54.1                         | 82.1       | 87.0                          | 64.4                   | 73.9             | 76.9         | 81.4         | 60.2                    | 70.6                      | 17.3                  | 62.5                       | 75.7              |
| 2.7          | 7.6        | 5.4                        | 4.8                                | 7.6                   | 5.0                      | 7.5                          | 4.6        | 2.2                           | 10.9                   | 6.0              | 5.5          | 2.9          | 7.0                     | 5.0                       | 3.8                   | 6.1                        | 4.7               |
| 5.1          | 43.9       | 16.4                       | 13.5                               | 22.5                  | 18.7                     | 31.1                         | 6.3        | 7.3                           | 16.5                   | 11.2             | 10.0         | 8.6          | 26.1                    | 18.3                      | 13.5                  | 22.6                       | 12.1              |
| 7.8          | 8.7        | 7.3                        | 8.3                                | 10.0                  | 8.3                      | 7.3                          | 7.0        | 3.5                           | 8.2                    | 8.9              | 7.5          | 7.1          | 6.8                     | 6.1                       | 65.4                  | 8.8                        | 7.5               |
| 25.5         | 31.1       | 23.0                       | 24.3                               | 19.5                  | 25.5                     | 29.6                         | 23.4       | 29.7                          | 31.8                   | 26.5             | 26.8         | 12.9         | 19.7                    | 20.6                      | 3.8                   | 19.4                       | 20.2              |
| 48.0         | 54.0       | 58.9                       | 55.6                               | 63.7                  | 53.7                     | 55.3                         | 60.2       | 49.0                          | 45.7                   | 52.8             | 53.1         | 66.2         | 61.3                    | 62.6                      | 9.6                   | 59.8                       | 59.4              |
| 5.6          | 3.3        | 6.8                        | 5.2                                | 4.9                   | 5.1                      | 3.1                          | 3.3        | 4.8                           | 6.4                    | 4.2              | 4.3          | 6.2          | 5.1                     | 5.0                       | 1.9                   | 4.9                        | 5.2               |
| 6.3          | 3.7        | 4.2                        | 4.1                                | 3.5                   | 4.8                      | 3.3                          | 4.8        | 8.8                           | 7.1                    | 4.6              | 5.6          | 2.3          | 2.0                     | 2.5                       | 0.0                   | 2.1                        | 3.7               |
| 0.0          | 0.3        | 0.0                        | 0.0                                | 0.0                   | 0.1                      | 0.0                          | 0.2        | 0.4                           | 0.0                    | 0.3              | 0.2          | 0.4          | 0.0                     | 0.4                       | 0.0                   | 0.1                        | 0.3               |
| 14.6         | 7.6        | 7.0                        | 10.8                               | 8.4                   | 10.7                     | 8.6                          | 8.1        | 7.3                           | 9.0                    | 11.6             | 9.9          | 12.0         | 11.9                    | 9.0                       | 84.6                  | 13.5                       | 11.3              |
| 33.1         | 32.2       | 35.2                       | 33.5                               | 35.8                  | 33.5                     | 32.0                         | 34.7       | 33.8                          | 34.5                   | 35.6             | 34.9         | 43.3         | 35.9                    | 38.6                      | 34.8                  | 37.0                       | 37.8              |
| 57.7         | 54.6       | 76.8                       | 55.6                               | 23.0                  | 55.2                     | 59.9                         | 51.6       | 66.4                          | 0.0                    | 50.5             | 48.5         | 29.9         | 32.2                    | 27.3                      | 5.8                   | 29.3                       | 37.8              |
| 74.8         | 72.9       | 87.3                       | 77.8                               | 87.5                  | 77.9                     | 69.2                         | 83.1       | 82.6                          | 80.5                   | 80.7             | 81.5         | 87.2         | 80.2                    | 87.8                      | 21.2                  | 80.9                       | 83.6              |
| 9.3          | 9.3        | 11.0                       | 10.1                               | 12.0                  | 10.0                     | 8.9                          | 11.2       | 10.9                          | 10.1                   | 12.0             | 11.3         | 18.9         | 12.3                    | 15.0                      | 9.1                   | 13.1                       | 13.8              |
| 7.3          | 7.0        | 8.9                        | 8.0                                | 8.1                   | 7.6                      | 7.0                          | 8.3        | 8.0                           | 8.0                    | 8.6              | 8.3          | 8.4          | 7.6                     | 8.5                       | 8.2                   | 7.9                        | 8.3               |
| 25.9         | 7.3        | 20.0                       | 11.0                               | 13.0                  | 17.2                     | 33.3                         | 8.8        | 7.9                           | 8.2                    | 5.8              | 7.0          | 4.6          | 3.7                     | 5.5                       | 1.9                   | 4.3                        | 5.6               |
| 18.3         | 2.9        | 12.7                       | 6.8                                | 6.8                   | 11.0                     | 16.0                         | 5.5        | 5.5                           | 4.1                    | 3.3              | 4.2          | 1.7          | 1.3                     | 2.1                       | 1.9                   | 1.6                        | 2.7               |
| 5.4          | 3.3        | 5.4                        | 2.9                                | 4.9                   | 4.5                      | 15.0                         | 2.2        | 0.4                           | 1.9                    | 1.2              | 1.4          | 1.7          | 1.9                     | 2.3                       | 0.0                   | 2.0                        | 1.6               |
| 1.9          | 0.6        | 0.9                        | 0.2                                | 1.1                   | 1.1                      | 0.9                          | 0.3        | 0.2                           | 1.5                    | 0.3              | 0.4          | 0.7          | 0.4                     | 0.8                       | 0.0                   | 0.5                        | 0.5               |
| 0.2          | 0.6        | 0.9                        | 1.0                                | 0.3                   | 0.5                      | 1.3                          | 0.8        | 1.8                           | 0.7                    | 1.0              | 1.1          | 0.5          | 0.1                     | 0.4                       | 0.0                   | 0.2                        | 0.7               |
| 58.3         | 82.3       | 69.5                       | 75.5                               | 72.9                  | 69.5                     | 56.0                         | 79.9       | 82.4                          | 81.3                   | 79.9             | 80.5         | 80.3         | 82.6                    | 82.1                      | 15.4                  | 80.5                       | 80.4              |
| 23.8         | 40.7       | 45.8                       | 49.4                               | 38.2                  | 36.1                     | 16.5                         | 58.0       | 64.6                          | 61.4                   | 56.7             | 58.7         | 60.9         | 60.2                    | 46.6                      | 9.6                   | 53.0                       | 58.4              |
| 13.8         | 19.2       | 8.5                        | 7.1                                | 14.6                  | 13.4                     | 27.5                         | 7.0        | 6.6                           | 8.6                    | 8.3              | 7.7          | 6.9          | 14.9                    | 11.8                      | 1.9                   | 13.2                       | 8.6               |
| 7.1          | 14.0       | 5.6                        | 8.1                                | 11.1                  | 9.0                      | 5.9                          | 3.3        | 0.4                           | 1.9                    | 1.6              | 1.8          | 3.9          | 3.1                     | 7.1                       | 0.0                   | 4.5                        | 3.1               |
| 8.0          | 3.0        | 2.6                        | 4.4                                | 4.3                   | 5.2                      | 1.9                          | 3.0        | 0.9                           | 1.5                    | 5.1              | 3.6          | 3.9          | 1.3                     | 11.5                      | 0.0                   | 5.2                        | 4.0               |
| 5.6          | 5.4        | 7.0                        | 6.6                                | 4.6                   | 5.8                      | 4.1                          | 8.6        | 9.9                           | 7.9                    | 8.2              | 8.5          | 4.8          | 3.2                     | 5.2                       | 0.0                   | 3.8                        | 6.2               |
| 15.9         | 10.4       | 10.6                       | 13.5                               | 14.1                  | 13.3                     | 10.8                         | 11.3       | 9.7                           | 10.5                   | 14.3             | 12.5         | 15.0         | 13.7                    | 12.4                      | 86.5                  | 16.0                       | 14.0              |
| 18.9         | 4.8        | 12.7                       | 7.1                                | 7.3                   | 11.8                     | 24.6                         | 5.3        | 5.3                           | 4.9                    | 3.0              | 4.1          | 2.8          | 2.4                     | 2.7                       | 1.9                   | 2.5                        | 3.3               |
| 7.0          | 2.5        | 7.3                        | 3.9                                | 5.7                   | 5.4                      | 8.7                          | 3.5        | 2.6                           | 3.4                    | 2.8              | 2.9          | 1.9          | 1.3                     | 2.9                       | 0.0                   | 1.8                        | 2.3               |
| 41.6         | 59.9       | 38.5                       | 45.9                               | 52.3                  | 47.2                     | 38.7                         | 41.8       | 46.2                          | 46.8                   | 49.4             | 47.0         | 61.0         | 69.9                    | 58.2                      | 9.6                   | 63.1                       | 55.6              |
| 16.7         | 22.4       | 31.0                       | 29.7                               | 20.6                  | 22.3                     | 17.3                         | 38.1       | 36.3                          | 34.5                   | 30.5             | 33.4         | 19.4         | 12.8                    | 23.9                      | 1.9                   | 16.6                       | 24.9              |
| <b>501</b>   | <b>434</b> | <b>164</b>                 | <b>221</b>                         | <b>193</b>            | <b>1,513</b>             | <b>6,987</b>                 | <b>252</b> | <b>210</b>                    | <b>125</b>             | <b>736</b>       | <b>1,323</b> | <b>1,477</b> | <b>546</b>              | <b>305</b>                | <b>5</b>              | <b>857</b>                 | <b>3,657</b>      |
| 22.4         | 50.2       | 28.0                       | 25.8                               | 32.1                  | 32.7                     | 56.5                         | 7.9        | 2.4                           | 3.2                    | 8.3              | 6.8          | 5.1          | 32.5                    | 10.2                      | 20.0                  | 24.5                       | 10.3              |
| 20.0         | 28.3       | 51.8                       | 52.5                               | 37.8                  | 32.8                     | 19.4                         | 72.2       | 82.4                          | 82.4                   | 70.1             | 73.6         | 37.2         | 49.7                    | 53.1                      | 60.0                  | 51.0                       | 53.6              |
| 4.8          | 5.1        | 4.9                        | 5.9                                | 8.3                   | 5.5                      | 3.2                          | 6.7        | 5.7                           | 2.4                    | 5.7              | 5.6          | 44.3         | 5.5                     | 13.8                      | 0.0                   | 8.4                        | 21.9              |
| 48.3         | 9.0        | 9.8                        | 8.1                                | 15.0                  | 22.7                     | 14.0                         | 9.9        | 4.3                           | 6.4                    | 10.6             | 9.1          | 9.4          | 8.0                     | 19.7                      | 20.0                  | 12.3                       | 10.0              |
| 1.6          | 4.4        | 3.0                        | 5.0                                | 3.6                   | 3.3                      | 2.4                          | 2.0        | 1.0                           | 4.0                    | 1.9              | 2.0          | 0.9          | 2.0                     | 2.0                       | 0.0                   | 2.0                        | 1.5               |
| 29.3         | 33.6       | 51.8                       | 48.0                               | 42.5                  | 37.4                     | 27.9                         | 59.5       | 54.8                          | 67.2                   | 44.4             | 51.1         | 25.9         | 48.3                    | 41.3                      | 80.0                  | 46.0                       | 39.7              |
| 23.2         | 27.2       | 24.4                       | 22.2                               | 18.7                  | 23.7                     | 16.4                         | 10.3       | 7.1                           | 7.2                    | 13.3             | 11.2         | 26.3         | 30.0                    | 19.3                      | 20.0                  | 26.1                       | 20.8              |
| 16.8         | 10.6       | 8.5                        | 10.0                               | 14.5                  | 12.8                     | 17.0                         | 10.3       | 16.2                          | 8.8                    | 16.6             | 14.6         | 13.8         | 6.6                     | 16.1                      | 0.0                   | 9.9                        | 13.2              |
| 16.4         | 13.6       | 5.5                        | 5.0                                | 10.4                  | 12.0                     | 14.7                         | 7.5        | 5.2                           | 5.6                    | 11.4             | 9.1          | 17.7         | 6.2                     | 14.4                      | 0.0                   | 9.1                        | 12.6              |
| 1.0          | 0.9        | 2.4                        | 1.8                                | 0.5                   | 1.2                      | 1.3                          | 0.8        | 1.4                           | 0.0                    | 3.0              | 2.0          | 0.9          | 0.0                     | 1.0                       | 0.0                   | 0.4                        | 1.2               |
| 10.4         | 11.3       | 5.5                        | 10.4                               | 10.4                  | 10.1                     | 18.4                         | 10.3       | 11.0                          | 9.6                    | 8.6              | 9.4          | 12.6         | 6.9                     | 6.6                       | 0.0                   | 6.8                        | 10.1              |
| 3.0          | 2.8        | 1.8                        | 2.7                                | 3.1                   | 2.8                      | 4.3                          | 1.2        | 4.3                           | 1.6                    | 2.7              | 2.6          | 2.8          | 2.0                     | 1.3                       | 0.0                   | 1.8                        | 2.5               |
| 5.8          | 7.1        | 5.5                        | 5.4                                | 8.3                   | 6.4                      | 6.4                          | 9.1        | 10.0                          | 6.4                    | 8.0              | 8.4          | 4.3          | 5.5                     | 4.6                       | 20.0                  | 5.3                        | 6.0               |
| 16.4         | 14.1       | 9.8                        | 14.9                               | 9.3                   | 13.9                     | 13.4                         | 15.5       | 17.6                          | 18.4                   | 13.2             | 14.8         | 12.9         | 14.8                    | 11.5                      | 0.0                   | 13.5                       | 13.7              |
| 12.6         | 8.5        | 16.5                       | 10.4                               | 11.9                  | 11.4                     | 11.8                         | 10.7       | 16.7                          | 12.8                   | 15.6             | 14.6         | 15.2         | 15.5                    | 12.5                      | 0.0                   | 14.4                       | 14.8              |
| 10.4         | 3.5        | 5.5                        | 1.8                                | 5.7                   | 6.0                      | 5.5                          | 9.1        | 6.7                           | 8.8                    | 6.9              | 7.5          | 10.1         | 6.9                     | 5.2                       | 0.0                   | 6.3                        | 8.3               |
| 16.4         | 20.7       | 11.6                       | 21.3                               | 21.2                  | 18.4                     | 14.0                         | 16.7       | 13.3                          | 18.4                   | 13.0             | 14.3         | 17.5         | 16.6                    | 18.0                      | 20.0                  | 17.2                       | 16.2              |
| 3.6          | 2.1        | 3.0                        | 4.1                                | 3.6                   | 3.2                      | 3.0                          | 4.8        | 7.1                           | 4.8                    | 4.8              | 5.1          | 6.8          | 3.5                     | 5.9                       | 0.0                   | 4.3                        | 5.6               |
| 9.6          | 4.1        | 5.5                        | 7.7                                | 5.7                   | 6.8                      | 8.1                          | 8.7        | 8.1                           | 4.8                    | 9.0              | 8.4          | 8.2          | 9.5                     | 10.8                      | 20.0                  | 10.0                       | 8.7               |
| 6.0          | 3.2        | 7.3                        | 4.1                                | 5.7                   | 5.0                      | 5.4                          | 1.6        | 3.3                           | 4.8                    | 5.4              | 4.3          | 6.1          | 2.7                     | 3.9                       | 0.0                   | 3.2                        | 4.8               |
| 15.0         | 6.7        | 15.2                       | 12.7                               | 8.8                   | 11.5                     | 17.6                         | 11.9       | 10.0                          | 11.2                   | 11.4             | 11.3         | 9.6          | 10.1                    | 10.5                      | 0.0                   | 10.2                       | 10.3              |
| 0.2          | 0.7        | 1.2                        | 1.4                                | 1.0                   | 0.7                      | 0.8                          | 0.8        | 1.0                           | 0.0                    | 1.2              | 1.0          | 0.5          | 0.5                     | 0.7                       | 0.0                   | 0.6                        | 0.7               |
| 4.0          | 28.8       | 18.9                       | 14.9                               | 17.1                  | 16.0                     | 13.4                         | 10.3       | 6.2                           | 8.0                    | 11.0             | 9.8          | 8.0          | 13.5                    | 16.4                      | 40.0                  | 14.7                       | 10.2              |
| 0.2          | 0.5        | 0.0                        | 1.4                                | 1.6                   | 0.6                      | 0.7                          | 0.8        | 0.0                           | 1.6                    | 0.4              | 0.5          | 0.8          | 0.7                     | 0.0                       | 0.0                   | 0.5                        | 0.6               |

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. #Physical Sciences includes Mathematics and Computer Sciences, as well as Physics/Astronomy, Chemistry, and Earth/Atmospheric/Marine Sciences.

\*Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools. +Includes only recipients with definite employment plans

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3c. Statistical profile of doctorate recipients by major field, 1998

Total women

|                                                            |     | 1998<br>Total | Physics and<br>Astronomy | Chemistry  | Earth, Atmos.,<br>and Marine Sci. | Mathematics | Computer<br>Sciences | PHYSICAL<br>SCIENCES# | ENGINEERING | Biochemistry | Other<br>Biosciences | Health       | Agricultural<br>Sciences | LIFE SCIENCES |
|------------------------------------------------------------|-----|---------------|--------------------------|------------|-----------------------------------|-------------|----------------------|-----------------------|-------------|--------------|----------------------|--------------|--------------------------|---------------|
| <b>Total Women</b>                                         |     | <b>17,856</b> | <b>223</b>               | <b>695</b> | <b>228</b>                        | <b>297</b>  | <b>157</b>           | <b>1,600</b>          | <b>769</b>  | <b>349</b>   | <b>2,184</b>         | <b>1,006</b> | <b>337</b>               | <b>3,876</b>  |
| Women as a Percent of Total Doctorates                     | %   | 41.8          | 14.1                     | 31.3       | 27.2                              | 25.2        | 17.0                 | 23.7                  | 13.0        | 43.7         | 43.2                 | 67.1         | 28.3                     | 45.4          |
| U.S. Citizenship                                           | %   | 75.3          | 50.2                     | 55.8       | 67.1                              | 57.2        | 63.7                 | 57.7                  | 48.1        | 56.4         | 67.4                 | 76.8         | 50.7                     | 67.4          |
| Non-U.S., Permanent Visa                                   |     | 5.7           | 9.9                      | 10.1       | 10.1                              | 9.1         | 12.7                 | 10.1                  | 10.0        | 13.2         | 8.9                  | 4.4          | 10.4                     | 8.2           |
| Non-U.S., Temporary Visa                                   |     | 12.4          | 30.0                     | 27.3       | 18.0                              | 25.3        | 12.7                 | 24.6                  | 32.2        | 26.1         | 18.4                 | 10.6         | 32.0                     | 18.2          |
| Unknown                                                    |     | 6.6           | 9.9                      | 6.8        | 4.8                               | 8.4         | 10.8                 | 7.6                   | 9.6         | 4.3          | 5.4                  | 8.2          | 6.8                      | 6.1           |
| Never Married                                              | %   | 25.4          | 34.5                     | 35.7       | 31.1                              | 30.3        | 14.0                 | 31.8                  | 33.3        | 27.8         | 32.4                 | 20.4         | 30.9                     | 28.7          |
| Married                                                    |     | 50.2          | 44.4                     | 48.6       | 50.4                              | 51.9        | 51.6                 | 49.2                  | 48.0        | 58.7         | 50.4                 | 55.7         | 50.7                     | 52.6          |
| Separated, Divorced                                        |     | 9.1           | 3.6                      | 2.6        | 6.1                               | 3.4         | 11.5                 | 4.3                   | 4.2         | 3.4          | 4.8                  | 10.0         | 7.4                      | 6.2           |
| Marriage-like Relationship                                 |     | 4.4           | 4.9                      | 4.7        | 6.1                               | 4.4         | 3.8                  | 4.8                   | 4.6         | 5.2          | 5.1                  | 2.6          | 3.0                      | 4.3           |
| Widowed                                                    |     | 0.5           | 0.0                      | 0.0        | 0.0                               | 0.7         | 0.0                  | 0.1                   | 0.3         | 0.0          | 0.1                  | 0.6          | 0.0                      | 0.2           |
| Unknown                                                    |     | 10.4          | 12.6                     | 8.3        | 6.1                               | 9.4         | 19.1                 | 9.9                   | 9.8         | 4.9          | 7.1                  | 10.7         | 8.0                      | 7.9           |
| Median Age at Doct.                                        | Yrs | 34.8          | 29.9                     | 29.3       | 32.2                              | 30.8        | 34.8                 | 30.3                  | 30.4        | 30.3         | 30.8                 | 40.8         | 33.2                     | 32.3          |
| Percent with Bacc. in Same Field as Doctorate              | %   | 49.2          | 69.1                     | 72.4       | 46.5                              | 68.7        | 28.7                 | 63.3                  | 66.1        | 25.5         | 56.4                 | 52.7         | 41.8                     | 51.4          |
| Percent with Masters                                       | %   | 74.8          | 69.5                     | 36.3       | 73.2                              | 70.7        | 79.0                 | 56.8                  | 79.1        | 34.4         | 39.9                 | 83.0         | 82.2                     | 54.3          |
| Median Time Lapse from Bacc. To Total Time Registered Time | Yrs | 11.3          | 7.5                      | 6.6        | 9.3                               | 8.3         | 12.4                 | 7.7                   | 8.0         | 8.0          | 8.2                  | 16.3         | 10.5                     | 9.4           |
|                                                            |     | 7.6           | 6.8                      | 6.0        | 7.4                               | 6.9         | 8.5                  | 6.5                   | 6.5         | 6.9          | 6.7                  | 8.2          | 7.0                      | 7.0           |
| Postdoctoral Study Plans                                   | %   | 22.5          | 42.2                     | 44.6       | 39.9                              | 20.2        | 9.6                  | 35.6                  | 20.5        | 71.9         | 66.1                 | 15.1         | 34.4                     | 50.6          |
| Fellowship                                                 |     | 13.6          | 14.8                     | 20.4       | 20.6                              | 11.4        | 3.2                  | 16.3                  | 6.6         | 44.7         | 43.4                 | 10.2         | 10.7                     | 32.1          |
| Research Assoc.                                            |     | 6.9           | 26.0                     | 22.9       | 18.9                              | 6.7         | 5.7                  | 18.1                  | 12.7        | 21.2         | 18.3                 | 3.6          | 23.4                     | 15.2          |
| Traineeship                                                |     | 0.8           | 0.9                      | 0.6        | 0.0                               | 1.7         | 0.6                  | 0.8                   | 0.3         | 1.4          | 1.2                  | 0.6          | 0.0                      | 1.0           |
| Other Study                                                |     | 1.1           | 0.4                      | 0.7        | 0.4                               | 0.3         | 0.0                  | 0.5                   | 0.9         | 4.6          | 3.2                  | 0.7          | 0.3                      | 2.4           |
| Planned Employment After Doctorate                         | %   | 64.9          | 43.9                     | 45.8       | 51.8                              | 67.7        | 73.2                 | 53.1                  | 68.1        | 20.9         | 25.7                 | 71.9         | 54.6                     | 39.8          |
| Educ. Institution*                                         |     | 38.9          | 9.9                      | 9.1        | 17.5                              | 38.0        | 35.7                 | 18.4                  | 14.0        | 5.2          | 9.7                  | 39.8         | 19.3                     | 17.9          |
| Industry/Business                                          |     | 11.4          | 22.0                     | 31.1       | 18.4                              | 22.2        | 29.9                 | 26.3                  | 42.4        | 7.7          | 6.9                  | 9.8          | 19.9                     | 8.9           |
| Government                                                 |     | 3.7           | 3.6                      | 2.2        | 5.7                               | 2.7         | 4.5                  | 3.2                   | 5.6         | 0.9          | 2.1                  | 6.6          | 8.0                      | 3.7           |
| Nonprofit                                                  |     | 3.9           | 0.9                      | 0.4        | 3.1                               | 1.0         | 0.0                  | 0.9                   | 0.8         | 0.6          | 1.2                  | 8.2          | 1.8                      | 3.0           |
| Other & Unknown                                            |     | 7.1           | 7.6                      | 3.0        | 7.0                               | 3.7         | 3.2                  | 4.4                   | 5.3         | 6.6          | 5.8                  | 7.6          | 5.6                      | 6.3           |
| Postdoc. Plans Unknown                                     | %   | 12.7          | 13.9                     | 9.6        | 8.3                               | 12.1        | 17.2                 | 11.3                  | 11.3        | 7.2          | 8.2                  | 13.0         | 11.0                     | 9.6           |
| Definite Postdoc. Study                                    | %   | 16.3          | 33.6                     | 35.4       | 29.4                              | 13.5        | 7.6                  | 27.5                  | 13.1        | 53.3         | 49.6                 | 10.5         | 22.6                     | 37.5          |
| Seeking Postdoc. Study                                     |     | 6.2           | 8.5                      | 9.2        | 10.5                              | 6.7         | 1.9                  | 8.1                   | 7.4         | 18.6         | 16.4                 | 4.6          | 11.9                     | 13.2          |
| Definite Employment                                        |     | 43.4          | 22.4                     | 29.4       | 32.5                              | 46.1        | 52.2                 | 34.2                  | 46.3        | 9.7          | 15.5                 | 52.0         | 31.5                     | 25.9          |
| Seeking Employment                                         |     | 21.5          | 21.5                     | 16.4       | 19.3                              | 21.5        | 21.0                 | 18.9                  | 21.8        | 11.2         | 10.2                 | 19.9         | 23.1                     | 13.9          |
| <b>Employment Commitments After Doctorate</b>              |     | <b>7,749</b>  | <b>50</b>                | <b>204</b> | <b>74</b>                         | <b>137</b>  | <b>82</b>            | <b>547</b>            | <b>356</b>  | <b>34</b>    | <b>339</b>           | <b>523</b>   | <b>106</b>               | <b>1,002</b>  |
| Primary Activity+                                          | %   | 19.6          | 50.0                     | 61.3       | 36.5                              | 29.9        | 42.7                 | 46.3                  | 66.6        | 41.2         | 33.3                 | 25.4         | 40.6                     | 30.2          |
| R & D                                                      |     | 44.2          | 26.0                     | 24.5       | 35.1                              | 51.8        | 39.0                 | 35.1                  | 13.5        | 23.5         | 30.4                 | 45.5         | 25.5                     | 37.5          |
| Teaching                                                   |     | 15.2          | 2.0                      | 1.0        | 1.4                               | 0.7         | 6.1                  | 1.8                   | 1.4         | 2.9          | 4.4                  | 9.0          | 7.5                      | 7.1           |
| Administration                                             |     | 15.3          | 14.0                     | 7.8        | 17.6                              | 10.9        | 8.5                  | 10.6                  | 10.7        | 11.8         | 15.0                 | 15.1         | 15.1                     | 15.0          |
| Prof. Services                                             |     | 1.7           | 4.0                      | 1.5        | 2.7                               | 2.2         | 2.4                  | 2.2                   | 4.2         | 2.9          | 1.5                  | 0.8          | 4.7                      | 1.5           |
| Other                                                      |     |               |                          |            |                                   |             |                      |                       |             |              |                      |              |                          |               |
| Secondary Activity                                         | %   | 36.8          | 36.0                     | 25.5       | 40.5                              | 55.5        | 35.4                 | 37.5                  | 22.8        | 29.4         | 29.5                 | 39.2         | 33.0                     | 34.9          |
| R & D                                                      |     | 16.9          | 10.0                     | 5.9        | 6.8                               | 14.6        | 12.2                 | 9.5                   | 13.8        | 2.9          | 13.0                 | 17.0         | 16.0                     | 15.1          |
| Teaching                                                   |     | 12.5          | 10.0                     | 16.2       | 13.5                              | 5.1         | 11.0                 | 11.7                  | 14.3        | 14.7         | 11.8                 | 13.8         | 11.3                     | 12.9          |
| Administration                                             |     | 14.6          | 6.0                      | 15.7       | 10.8                              | 8.8         | 13.4                 | 12.1                  | 16.0        | 14.7         | 15.6                 | 15.9         | 13.2                     | 15.5          |
| Prof. Services                                             |     | 1.5           | 2.0                      | 1.0        | 5.4                               | 0.7         | 2.4                  | 1.8                   | 1.1         | 0.0          | 1.2                  | 1.1          | 3.8                      | 1.4           |
| Other                                                      |     | 13.8          | 32.0                     | 31.9       | 16.2                              | 10.9        | 24.4                 | 23.4                  | 28.7        | 20.6         | 13.9                 | 8.8          | 16.0                     | 11.7          |
| No Secondary Activity                                      | %   | 3.9           | 4.0                      | 3.9        | 6.8                               | 4.4         | 1.2                  | 4.0                   | 3.4         | 17.6         | 15.0                 | 4.2          | 6.6                      | 8.6           |
| Activity(ies) Unknown                                      |     |               |                          |            |                                   |             |                      |                       |             |              |                      |              |                          |               |
| Region of Employment After Doctorate+                      | %   | 6.5           | 6.0                      | 9.3        | 2.7                               | 5.1         | 4.9                  | 6.4                   | 7.0         | 14.7         | 8.8                  | 5.5          | 2.8                      | 6.7           |
| New England                                                |     | 15.1          | 18.0                     | 21.6       | 14.9                              | 14.6        | 23.2                 | 18.8                  | 15.7        | 5.9          | 14.5                 | 10.3         | 11.3                     | 11.7          |
| Middle Atlantic                                            |     | 14.0          | 16.0                     | 14.7       | 8.1                               | 16.1        | 12.2                 | 13.9                  | 10.1        | 11.8         | 13.6                 | 15.5         | 12.3                     | 14.4          |
| East No. Central                                           |     | 7.3           | 0.0                      | 6.4        | 1.4                               | 9.5         | 7.3                  | 6.0                   | 5.6         | 0.0          | 7.7                  | 7.6          | 11.3                     | 7.8           |
| West No. Central                                           |     | 17.7          | 12.0                     | 18.1       | 13.5                              | 17.5        | 15.9                 | 16.5                  | 12.1        | 23.5         | 15.6                 | 19.3         | 7.5                      | 17.0          |
| South Atlantic                                             |     | 4.9           | 2.0                      | 2.0        | 2.7                               | 2.9         | 7.3                  | 3.1                   | 2.2         | 0.0          | 4.4                  | 5.9          | 1.9                      | 4.8           |
| East So. Central                                           |     | 8.5           | 4.0                      | 7.4        | 14.9                              | 7.3         | 7.3                  | 8.0                   | 7.3         | 5.9          | 5.6                  | 9.0          | 8.5                      | 7.7           |
| West So. Central                                           |     | 5.5           | 4.0                      | 2.5        | 13.5                              | 6.6         | 3.7                  | 5.3                   | 5.6         | 2.9          | 4.1                  | 4.2          | 9.4                      | 4.7           |
| Mountain                                                   |     | 12.4          | 36.0                     | 9.3        | 16.2                              | 10.2        | 14.6                 | 13.7                  | 22.8        | 20.6         | 14.7                 | 10.9         | 12.3                     | 12.7          |
| Pacific & Insular                                          |     | 1.0           | 0.0                      | 0.5        | 4.1                               | 0.7         | 1.2                  | 1.1                   | 0.3         | 2.9          | 1.5                  | 1.1          | 0.9                      | 1.3           |
| U.S., Region Unknown                                       |     | 6.5           | 2.0                      | 7.8        | 8.1                               | 9.5         | 2.4                  | 6.9                   | 10.4        | 11.8         | 9.1                  | 9.6          | 21.7                     | 10.8          |
| Foreign                                                    |     | 0.7           | 0.0                      | 0.5        | 0.0                               | 0.0         | 0.0                  | 0.2                   | 0.8         | 0.0          | 0.3                  | 1.0          | 0.0                      | 0.6           |
| Region Unknown                                             |     |               |                          |            |                                   |             |                      |                       |             |              |                      |              |                          |               |

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3c. Statistical profile of doctorate recipients by major field, 1998

Total women

| Psychology   | Economics  | Anthropology and Sociology | Political Sci./ International Rel. | Other Social Sciences | SOCIAL SCI. INCL. PSYCH. | TOTAL SCIENCES & ENGINEERING | History    | Eng. and Amer. Lang. and Lit. | Foreign Lang. and Lit. | Other Humanities | HUMANITIES   | EDUCATION    | Business and Management | Other Professional Fields | Other Field/ Unknown | PROFESSIONAL/ OTHER FIELDS | TOTAL NONSCIENCES |
|--------------|------------|----------------------------|------------------------------------|-----------------------|--------------------------|------------------------------|------------|-------------------------------|------------------------|------------------|--------------|--------------|-------------------------|---------------------------|----------------------|----------------------------|-------------------|
| <b>2,460</b> | <b>271</b> | <b>543</b>                 | <b>276</b>                         | <b>288</b>            | <b>3,838</b>             | <b>10,083</b>                | <b>385</b> | <b>621</b>                    | <b>373</b>             | <b>1,296</b>     | <b>2,675</b> | <b>4,120</b> | <b>374</b>              | <b>567</b>                | <b>37</b>            | <b>978</b>                 | <b>7,768</b>      |
| 66.8         | 27.2       | 55.7                       | 36.4                               | 43.4                  | 54.2                     | 35.7                         | 39.0       | 57.7                          | 58.1                   | 46.4             | 48.6         | 62.8         | 32.1                    | 51.9                      | 39.4                 | 41.6                       | 54.0              |
| 87.2         | 44.6       | 79.2                       | 81.2                               | 70.8                  | 81.4                     | 69.7                         | 87.0       | 88.6                          | 62.2                   | 74.0             | 77.6         | 86.3         | 78.3                    | 85.5                      | 40.5                 | 81.1                       | 82.7              |
| 2.4          | 9.2        | 4.2                        | 5.1                                | 5.6                   | 3.6                      | 6.9                          | 3.4        | 2.4                           | 16.4                   | 6.9              | 6.7          | 2.4          | 5.6                     | 3.9                       | 3.1                  | 4.5                        | 4.1               |
| 3.6          | 34.7       | 10.3                       | 8.0                                | 18.1                  | 8.2                      | 16.5                         | 5.7        | 3.7                           | 12.9                   | 12.5             | 9.5          | 5.2          | 11.5                    | 6.3                       | 8.1                  | 8.4                        | 7.1               |
| 6.8          | 11.4       | 6.3                        | 5.8                                | 5.6                   | 6.9                      | 6.9                          | 3.9        | 5.3                           | 8.6                    | 6.6              | 6.2          | 6.1          | 4.5                     | 4.2                       | 48.6                 | 6.0                        | 6.1               |
| 27.6         | 36.5       | 25.8                       | 27.9                               | 31.3                  | 28.2                     | 29.4                         | 24.9       | 25.9                          | 22.5                   | 30.2             | 27.4         | 15.0         | 21.1                    | 25.0                      | 8.1                  | 22.9                       | 20.2              |
| 43.1         | 44.3       | 47.7                       | 50.0                               | 45.8                  | 44.5                     | 48.6                         | 50.4       | 46.7                          | 51.2                   | 45.5             | 47.3         | 55.9         | 50.5                    | 51.5                      | 24.3                 | 50.1                       | 52.3              |
| 7.7          | 5.2        | 11.4                       | 8.7                                | 8.0                   | 8.2                      | 6.5                          | 14.3       | 11.4                          | 11.8                   | 8.9              | 10.7         | 13.6         | 12.6                    | 12.9                      | 3.1                  | 12.4                       | 12.5              |
| 4.9          | 3.0        | 6.4                        | 5.4                                | 5.2                   | 5.1                      | 4.7                          | 4.9        | 7.7                           | 6.2                    | 5.7              | 6.1          | 2.8          | 5.1                     | 3.7                       | 5.4                  | 4.3                        | 4.1               |
| 0.3          | 0.7        | 0.2                        | 0.4                                | 1.7                   | 0.4                      | 0.3                          | 0.5        | 0.3                           | 0.8                    | 0.2              | 0.3          | 1.1          | 0.3                     | 1.2                       | 0.0                  | 0.8                        | 0.8               |
| 16.4         | 10.3       | 8.5                        | 7.6                                | 8.0                   | 13.6                     | 10.5                         | 4.9        | 7.9                           | 7.5                    | 9.5              | 8.2          | 11.6         | 10.4                    | 5.6                       | 59.5                 | 9.5                        | 10.1              |
| 32.2         | 30.9       | 34.8                       | 32.3                               | 36.7                  | 32.8                     | 31.9                         | 35.3       | 34.9                          | 34.8                   | 35.5             | 35.2         | 44.8         | 36.5                    | 39.9                      | 40.9                 | 39.0                       | 40.6              |
| 59.3         | 60.9       | 72.0                       | 47.8                               | 19.1                  | 57.3                     | 56.6                         | 51.9       | 62.5                          | 0.0                    | 48.1             | 45.3         | 38.1         | 35.0                    | 28.6                      | 13.5                 | 30.5                       | 39.6              |
| 75.2         | 69.0       | 85.8                       | 79.3                               | 87.8                  | 77.5                     | 65.4                         | 84.4       | 84.5                          | 85.8                   | 85.4             | 85.1         | 88.3         | 79.7                    | 94.0                      | 40.5                 | 86.5                       | 87.0              |
| 9.0          | 8.5        | 11.0                       | 9.9                                | 12.7                  | 9.6                      | 9.0                          | 11.9       | 11.3                          | 11.4                   | 12.2             | 11.9         | 20.6         | 13.0                    | 15.8                      | 15.7                 | 14.6                       | 16.0              |
| 7.0          | 7.0        | 8.6                        | 7.8                                | 8.0                   | 7.4                      | 7.0                          | 9.0        | 8.6                           | 8.5                    | 9.0              | 9.0          | 8.4          | 7.9                     | 8.0                       | 6.8                  | 8.0                        | 8.6               |
| 29.1         | 4.8        | 15.7                       | 8.7                                | 13.5                  | 22.9                     | 35.4                         | 9.9        | 5.6                           | 7.0                    | 7.8              | 7.5          | 4.7          | 4.5                     | 6.0                       | 5.4                  | 5.4                        | 5.7               |
| 22.2         | 2.6        | 9.9                        | 7.2                                | 8.3                   | 17.0                     | 21.9                         | 7.3        | 4.5                           | 2.9                    | 4.8              | 4.8          | 1.9          | 1.3                     | 1.9                       | 5.4                  | 1.8                        | 2.9               |
| 4.1          | 1.5        | 4.8                        | 1.1                                | 4.2                   | 3.8                      | 11.1                         | 0.5        | 0.2                           | 2.1                    | 1.6              | 1.2          | 1.5          | 2.1                     | 2.5                       | 0.0                  | 2.2                        | 1.5               |
| 2.0          | 0.4        | 0.4                        | 0.4                                | 0.7                   | 1.5                      | 1.1                          | 0.5        | 0.2                           | 0.5                    | 0.5              | 0.4          | 0.5          | 0.3                     | 0.5                       | 0.0                  | 0.4                        | 0.5               |
| 0.8          | 0.4        | 0.6                        | 0.0                                | 0.3                   | 0.7                      | 1.3                          | 1.6        | 0.8                           | 1.3                    | 0.8              | 1.0          | 0.7          | 0.8                     | 1.1                       | 0.0                  | 0.9                        | 0.8               |
| 52.6         | 84.1       | 73.1                       | 83.7                               | 75.0                  | 61.6                     | 52.4                         | 80.3       | 84.1                          | 82.3                   | 79.2             | 80.9         | 80.8         | 82.4                    | 85.5                      | 40.5                 | 82.6                       | 81.1              |
| 20.2         | 43.9       | 50.3                       | 54.0                               | 38.2                  | 29.9                     | 22.3                         | 61.0       | 66.2                          | 65.7                   | 56.8             | 60.8         | 61.1         | 63.4                    | 54.0                      | 27.0                 | 56.5                       | 60.5              |
| 11.2         | 18.1       | 5.7                        | 8.0                                | 13.5                  | 10.8                     | 14.9                         | 4.4        | 6.4                           | 6.7                    | 8.2              | 7.0          | 5.6          | 10.2                    | 12.0                      | 0.0                  | 10.9                       | 6.8               |
| 5.4          | 11.1       | 5.0                        | 2.5                                | 6.3                   | 5.6                      | 4.5                          | 2.1        | 1.0                           | 0.5                    | 1.9              | 1.5          | 3.1          | 2.7                     | 3.9                       | 5.4                  | 3.5                        | 2.6               |
| 7.4          | 4.1        | 5.9                        | 7.2                                | 8.7                   | 7.0                      | 4.0                          | 1.3        | 1.4                           | 1.1                    | 3.8              | 2.5          | 4.0          | 1.9                     | 7.6                       | 5.4                  | 5.3                        | 3.6               |
| 8.5          | 7.0        | 6.3                        | 12.0                               | 8.3                   | 8.3                      | 6.7                          | 11.4       | 9.0                           | 8.3                    | 8.5              | 9.0          | 7.0          | 4.3                     | 8.1                       | 2.7                  | 6.4                        | 7.6               |
| 18.3         | 11.1       | 11.2                       | 7.6                                | 11.5                  | 15.5                     | 12.2                         | 9.9        | 10.3                          | 10.7                   | 13.0             | 11.6         | 14.5         | 13.1                    | 8.5                       | 54.1                 | 12.0                       | 13.1              |
| 21.6         | 3.0        | 9.9                        | 5.8                                | 9.7                   | 16.6                     | 26.1                         | 6.2        | 4.2                           | 3.8                    | 5.2              | 4.9          | 2.8          | 2.9                     | 3.5                       | 6.3                  | 3.4                        | 3.6               |
| 7.6          | 1.8        | 5.7                        | 2.9                                | 3.8                   | 6.3                      | 9.3                          | 3.6        | 1.4                           | 3.2                    | 2.5              | 2.5          | 1.9          | 1.6                     | 2.5                       | 0.0                  | 2.0                        | 2.1               |
| 33.8         | 65.7       | 48.8                       | 54.0                               | 51.0                  | 40.9                     | 34.5                         | 49.9       | 47.8                          | 48.0                   | 46.7             | 47.6         | 58.3         | 67.4                    | 59.3                      | 29.7                 | 61.2                       | 55.0              |
| 18.8         | 18.5       | 24.3                       | 29.7                               | 24.0                  | 20.7                     | 17.9                         | 30.4       | 36.2                          | 34.3                   | 32.5             | 33.3         | 22.5         | 15.0                    | 26.3                      | 10.8                 | 21.4                       | 26.1              |
| <b>831</b>   | <b>178</b> | <b>265</b>                 | <b>149</b>                         | <b>147</b>            | <b>1,570</b>             | <b>3,475</b>                 | <b>192</b> | <b>297</b>                    | <b>179</b>             | <b>605</b>       | <b>1,273</b> | <b>2,402</b> | <b>252</b>              | <b>336</b>                | <b>11</b>            | <b>599</b>                 | <b>4,274</b>      |
| 17.9         | 44.4       | 26.0                       | 22.1                               | 36.7                  | 24.5                     | 33.9                         | 6.3        | 5.7                           | 6.1                    | 8.8              | 7.3          | 5.4          | 27.0                    | 14.3                      | 27.3                 | 19.9                       | 8.0               |
| 18.9         | 36.0       | 58.1                       | 59.7                               | 29.9                  | 32.4                     | 32.3                         | 79.7       | 78.8                          | 83.2                   | 71.7             | 76.2         | 42.1         | 57.1                    | 50.6                      | 36.4                 | 53.1                       | 53.8              |
| 6.4          | 2.2        | 4.5                        | 5.4                                | 15.0                  | 6.3                      | 5.3                          | 4.2        | 7.1                           | 2.8                    | 4.8              | 4.9          | 36.1         | 6.0                     | 14.0                      | 9.1                  | 10.5                       | 23.3              |
| 52.2         | 12.9       | 6.8                        | 6.7                                | 12.9                  | 32.1                     | 21.6                         | 2.6        | 3.0                           | 2.8                    | 7.8              | 5.2          | 12.3         | 7.1                     | 16.1                      | 18.2                 | 12.4                       | 10.2              |
| 1.1          | 3.4        | 1.9                        | 4.0                                | 1.4                   | 1.8                      | 2.0                          | 2.1        | 1.3                           | 1.7                    | 2.3              | 2.0          | 1.1          | 1.2                     | 1.5                       | 9.1                  | 1.5                        | 1.4               |
| 27.6         | 43.8       | 52.5                       | 57.7                               | 30.6                  | 36.8                     | 34.9                         | 63.5       | 55.9                          | 64.2                   | 49.8             | 55.3         | 26.4         | 54.4                    | 47.3                      | 27.3                 | 49.9                       | 38.3              |
| 18.3         | 19.1       | 16.2                       | 16.8                               | 17.0                  | 17.8                     | 15.3                         | 10.4       | 9.4                           | 10.1                   | 12.6             | 11.2         | 20.5         | 29.8                    | 19.6                      | 18.2                 | 23.9                       | 18.2              |
| 17.7         | 5.1        | 12.5                       | 10.7                               | 12.2                  | 14.2                     | 13.4                         | 8.9        | 9.4                           | 10.6                   | 11.7             | 10.6         | 13.3         | 6.0                     | 9.2                       | 18.2                 | 8.0                        | 11.8              |
| 15.4         | 15.7       | 7.5                        | 4.0                                | 19.7                  | 13.4                     | 14.1                         | 2.6        | 8.4                           | 4.5                    | 10.4             | 7.9          | 20.1         | 4.4                     | 12.2                      | 18.2                 | 9.0                        | 15.0              |
| 1.6          | 1.7        | 1.1                        | 2.7                                | 0.7                   | 1.5                      | 1.5                          | 0.0        | 1.7                           | 0.6                    | 3.6              | 2.2          | 1.3          | 0.8                     | 1.5                       | 0.0                  | 1.2                        | 1.5               |
| 16.0         | 13.5       | 7.5                        | 6.0                                | 15.6                  | 13.3                     | 16.0                         | 9.4        | 11.1                          | 7.3                    | 7.8              | 8.7          | 15.5         | 3.2                     | 6.5                       | 18.2                 | 5.3                        | 12.1              |
| 3.5          | 1.1        | 2.6                        | 2.0                                | 4.1                   | 3.0                      | 4.8                          | 5.2        | 4.0                           | 2.8                    | 4.1              | 4.1          | 2.9          | 1.6                     | 3.6                       | 0.0                  | 2.7                        | 3.2               |
| 6.3          | 9.6        | 11.3                       | 7.4                                | 12.9                  | 8.2                      | 7.4                          | 12.0       | 5.7                           | 8.9                    | 7.1              | 7.8          | 4.3          | 9.6                     | 5.4                       | 9.1                  | 7.2                        | 5.7               |
| 20.2         | 18.0       | 15.5                       | 18.1                               | 15.0                  | 18.5                     | 16.3                         | 14.6       | 16.8                          | 19.0                   | 16.5             | 16.7         | 12.4         | 14.3                    | 16.4                      | 9.1                  | 15.4                       | 14.1              |
| 12.4         | 6.7        | 12.8                       | 10.1                               | 15.0                  | 11.8                     | 12.7                         | 13.0       | 15.8                          | 17.9                   | 15.7             | 15.6         | 14.7         | 16.3                    | 14.0                      | 9.1                  | 14.9                       | 15.0              |
| 8.1          | 0.6        | 6.0                        | 8.1                                | 4.8                   | 6.6                      | 6.7                          | 6.8        | 7.4                           | 8.9                    | 5.8              | 6.8          | 8.5          | 5.6                     | 8.6                       | 0.0                  | 7.2                        | 7.8               |
| 15.3         | 25.3       | 11.3                       | 26.2                               | 17.7                  | 17.0                     | 16.4                         | 12.0       | 12.5                          | 10.1                   | 14.4             | 13.0         | 22.0         | 20.3                    | 16.4                      | 18.2                 | 18.1                       | 18.8              |
| 3.5          | 3.4        | 3.8                        | 4.7                                | 3.4                   | 3.6                      | 3.7                          | 5.7        | 7.4                           | 6.1                    | 3.8              | 5.3          | 6.4          | 3.6                     | 5.1                       | 9.1                  | 4.5                        | 5.8               |
| 8.2          | 4.5        | 4.9                        | 9.4                                | 5.4                   | 7.1                      | 7.4                          | 8.9        | 9.4                           | 3.4                    | 6.9              | 7.3          | 10.4         | 10.8                    | 9.2                       | 0.0                  | 9.7                        | 9.4               |
| 6.6          | 1.7        | 7.2                        | 2.7                                | 6.8                   | 5.8                      | 5.4                          | 6.3        | 5.7                           | 1.7                    | 6.0              | 5.3          | 6.1          | 4.8                     | 4.5                       | 9.1                  | 4.7                        | 5.7               |
| 15.5         | 10.7       | 14.7                       | 7.4                                | 12.2                  | 13.8                     | 14.4                         | 15.1       | 13.8                          | 10.1                   | 11.7             | 12.5         | 9.7          | 8.4                     | 12.8                      | 18.2                 | 11.0                       | 10.7              |
| 0.8          | 1.7        | 1.1                        | 0.7                                | 0.0                   | 0.9                      | 1.0                          | 0.5        | 1.7                           | 0.0                    | 1.0              | 0.9          | 1.0          | 0.4                     | 1.5                       | 0.0                  | 1.0                        | 1.0               |
| 2.5          | 18.0       | 11.3                       | 4.7                                | 6.8                   | 6.4                      | 8.1                          | 4.7        | 3.0                           | 13.4                   | 10.4             | 8.2          | 3.4          | 5.6                     | 5.4                       | 18.2                 | 5.7                        | 5.1               |
| 0.6          | 0.0        | 0.0                        | 0.7                                | 0.0                   | 0.4                      | 0.5                          | 0.5        | 0.7                           | 0.6                    | 0.7              | 0.6          | 1.1          | 0.4                     | 0.9                       | 0.0                  | 0.7                        | 0.9               |

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. #Physical Sciences includes Mathematics and Computer Sciences, as well as Physics/Astronomy, Chemistry, and Earth/Atmospheric/Marine Sciences..

\*Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.

+Includes only recipients with definite employment plans.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-4. Statistical profile of doctorate recipients, by race/ethnicity and citizenship, 1998

|                                              | Total*        | Non-U.S.      |              |              | American Indian† | Asian‡       |              |              |              | Black        |              |            |            |
|----------------------------------------------|---------------|---------------|--------------|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|------------|
|                                              |               | U.S.          | Perm.        | Temp.        |                  | Non-U.S.     |              |              |              | Total*       | U.S.         | Perm.      | Temp.      |
|                                              |               |               |              |              | Total            | Total        | U.S.         | Perm.        | Temp.        |              |              |            |            |
| <b>Total Number</b>                          | <b>42,683</b> | <b>28,218</b> | <b>2,696</b> | <b>8,642</b> | <b>189</b>       | <b>8,575</b> | <b>1,168</b> | <b>1,552</b> | <b>5,388</b> | <b>1,903</b> | <b>1,467</b> | <b>119</b> | <b>254</b> |
| Male                                         | % 57.8        | 52.3          | 61.6         | 74.3         | 55.0             | 70.3         | 55.1         | 63.5         | 75.4         | 43.1         | 35.4         | 73.1       | 68.5       |
| Female                                       | 41.8          | 47.7          | 37.8         | 25.6         | 45.0             | 29.5         | 44.9         | 36.0         | 24.5         | 56.8         | 64.6         | 26.1       | 31.5       |
| <b>Doctoral Field</b>                        |               |               |              |              |                  |              |              |              |              |              |              |            |            |
| Physical Sciences++                          | % 15.8        | 13.0          | 20.4         | 23.6         | 10.1             | 21.4         | 16.3         | 22.8         | 22.5         | 7.4          | 5.6          | 9.2        | 16.1       |
| Engineering                                  | 13.9          | 9.0           | 17.7         | 27.7         | 6.9              | 28.2         | 20.9         | 20.0         | 32.3         | 6.0          | 5.2          | 6.7        | 9.4        |
| Life Sciences                                | 20.0          | 18.7          | 27.2         | 22.5         | 13.2             | 25.4         | 24.9         | 32.8         | 23.3         | 15.0         | 11.1         | 25.2       | 30.3       |
| Social Sciences                              | 16.6          | 18.8          | 11.1         | 10.6         | 22.2             | 9.8          | 14.7         | 8.2          | 8.8          | 18.8         | 18.9         | 20.2       | 18.5       |
| Humanities                                   | 12.9          | 15.0          | 12.5         | 6.2          | 11.6             | 5.1          | 9.6          | 6.8          | 3.7          | 9.7          | 10.2         | 7.6        | 7.1        |
| Education                                    | 15.4          | 19.6          | 6.3          | 4.9          | 26.5             | 5.2          | 8.7          | 5.0          | 4.4          | 37.0         | 42.2         | 22.7       | 16.5       |
| Professional/Other                           | 5.5           | 5.8           | 4.7          | 4.5          | 9.5              | 4.8          | 4.9          | 4.3          | 4.9          | 6.2          | 6.8          | 8.4        | 2.0        |
| Median Age at Doct.                          | Yrs 33.7      | 34.3          | 34.2         | 32.3         | 36.1             | 32.7         | 30.7         | 34.2         | 32.4         | 38.4         | 39.2         | 38.4       | 37.1       |
| <b>Median Time Lapse From Bacc. to Doct.</b> |               |               |              |              |                  |              |              |              |              |              |              |            |            |
| Total Time                                   | Yrs 10.4      | 10.7          | 11.4         | 9.5          | 11.3             | 10.0         | 8.2          | 12.2         | 9.9          | 13.5         | 14.0         | 11.5       | 12.1       |
| Registered Time                              | 7.3           | 7.5           | 7.9          | 7.0          | 7.5              | 7.2          | 7.0          | 8.0          | 7.0          | 7.7          | 7.9          | 7.5        | 7.4        |
| <b>Doctoral Program Support**</b>            |               |               |              |              |                  |              |              |              |              |              |              |            |            |
| Teaching Assistantships                      | % 17.8        | 16.1          | 22.8         | 21.4         | 13.8             | 19.3         | 12.9         | 21.3         | 19.9         | 10.0         | 6.8          | 20.4       | 22.9       |
| Res. Assistantships/Traineeships             | 26.5          | 20.5          | 37.7         | 42.1         | 15.6             | 45.9         | 32.2         | 47.1         | 49.0         | 12.2         | 8.7          | 23.3       | 25.1       |
| Fellowships/Dissertation Grants              | 16.3          | 17.4          | 14.2         | 13.6         | 24.0             | 13.2         | 26.4         | 12.6         | 10.6         | 30.1         | 30.8         | 21.4       | 29.5       |
| Own Resources                                | 32.2          | 40.1          | 20.2         | 11.3         | 41.9             | 15.1         | 24.2         | 14.9         | 13.0         | 39.3         | 46.1         | 27.2       | 9.7        |
| Foreign Government                           | 2.5           | 0.1           | 2.1          | 9.7          | 0.6              | 4.6          | 0.3          | 1.7          | 6.0          | 1.6          | 0.0          | 1.9        | 10.1       |
| Employer                                     | 3.1           | 4.0           | 1.7          | 1.1          | 3.0              | 1.1          | 2.0          | 1.7          | 0.8          | 4.8          | 5.7          | 3.9        | 0.0        |
| Other                                        | % 1.6         | 1.8           | 1.3          | 0.9          | 1.2              | 0.8          | 2.0          | 0.6          | 0.6          | 2.0          | 1.9          | 1.9        | 2.6        |
| <b>Postdoctoral Plans</b>                    |               |               |              |              |                  |              |              |              |              |              |              |            |            |
| Postdoc study plans                          | 24.4          | 22.0          | 31.6         | 36.0         | 17.5             | 35.0         | 33.1         | 34.7         | 36.2         | 18.2         | 15.1         | 26.9       | 31.1       |
| Postdoc employment plans                     | 63.3          | 70.5          | 61.4         | 57.5         | 72.0             | 58.2         | 59.8         | 59.8         | 57.7         | 70.6         | 74.3         | 62.2       | 60.6       |
| Educ. Institution #                          | % 32.3        | 39.2          | 22.8         | 21.7         | 40.2             | 18.6         | 21.6         | 17.0         | 18.3         | 44.7         | 48.6         | 33.6       | 33.1       |
| Industry/Business                            | 17.7          | 15.8          | 27.0         | 25.9         | 12.7             | 29.8         | 23.5         | 32.3         | 31.1         | 10.0         | 9.5          | 17.6       | 9.8        |
| Government                                   | 4.5           | 4.9           | 2.8          | 4.7          | 5.3              | 4.1          | 4.5          | 2.7          | 4.3          | 5.6          | 5.6          | 1.7        | 7.9        |
| Nonprofit                                    | 3.0           | 3.8           | 2.9          | 1.4          | 2.6              | 1.7          | 2.8          | 2.8          | 1.2          | 3.8          | 3.9          | 2.5        | 3.9        |
| Other/Unknown                                | 5.7           | 6.7           | 5.9          | 3.9          | 11.1             | 4.0          | 7.4          | 4.9          | 2.9          | 6.6          | 6.7          | 6.7        | 5.9        |
| Postdoc plans unknown                        | % 12.4        | 7.5           | 7.1          | 6.6          | 10.6             | 6.7          | 7.0          | 5.5          | 6.0          | 11.1         | 10.6         | 10.9       | 8.3        |
| Definite Postdoc. Study                      | % 17.7        | 16.9          | 21.4         | 24.1         | 10.1             | 23.4         | 23.9         | 23.3         | 24.0         | 10.8         | 9.4          | 13.4       | 15.4       |
| Seeking Postdoc. Study                       | 6.6           | 5.0           | 10.1         | 11.9         | 7.4              | 11.7         | 9.2          | 11.3         | 12.2         | 7.5          | 5.7          | 13.4       | 15.7       |
| Definite Employment                          | 43.1          | 49.4          | 36.1         | 37.0         | 45.5             | 36.0         | 40.8         | 35.6         | 35.5         | 45.9         | 49.2         | 31.9       | 38.2       |
| Seeking Employment                           | 20.1          | 21.1          | 25.2         | 20.5         | 26.5             | 22.3         | 19.0         | 24.2         | 22.3         | 24.8         | 25.1         | 30.3       | 22.4       |
| <b>Employment Location</b>                   |               |               |              |              |                  |              |              |              |              |              |              |            |            |
| After Doctorate+                             | <b>18,409</b> | <b>13,935</b> | <b>974</b>   | <b>3,196</b> | <b>86</b>        | <b>3,085</b> | <b>477</b>   | <b>552</b>   | <b>1,911</b> | <b>873</b>   | <b>722</b>   | <b>38</b>  | <b>97</b>  |
| U.S.                                         | % 89.4        | 97.1          | 90.1         | 59.9         | 97.7             | 75.5         | 93.7         | 90.9         | 68.4         | 88.9         | 98.2         | 81.6       | 33.0       |
| Foreign                                      | 9.9           | 2.2           | 8.9          | 39.4         | 2.3              | 23.7         | 4.4          | 8.2          | 31.0         | 10.0         | 0.8          | 13.2       | 66.0       |
| Unknown                                      | % 0.7         | 0.7           | 0.9          | 0.7          | 0.0              | 0.8          | 1.9          | 0.9          | 0.5          | 1.1          | 1.0          | 5.3        | 1.0        |

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.

\*Includes 174 individuals who did not report their gender and 3,127 individuals who did not report their citizenship at time of doctorate.

\*\*In this table a recipient counts once in each source category from which he or she received support. This question and its response categories changed in 1998. Please refer to Appendix C technical notes for details. Since students indicate multiple sources of support, the vertical percentages sum to more than 100 percent. (Data on the "primary" source of support for doctorate recipients are presented in the Summary Report.)

#Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.

+Includes only recipients with definite employment plans.

‡Includes Pacific Islander.

†Includes Alaskan Native.

++ Includes mathematics and computer sciences.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates



APPENDIX TABLE A-4. Statistical profile of doctorate recipients, by race/ethnicity and citizenship, 1998, continued

| Total*        | White         |            |              | Puerto Rican Total | Mexican American |            |           |           | Other Hispanic |            |            |            | Unknown Race |            |           |            |
|---------------|---------------|------------|--------------|--------------------|------------------|------------|-----------|-----------|----------------|------------|------------|------------|--------------|------------|-----------|------------|
|               | U.S.          | Non-U.S.   |              |                    | Total*           | U.S.       | Non-U.S.  |           | Total*         | U.S.       | Non-U.S.   |            | Total*       | U.S.       | Non-U.S.  |            |
|               |               | Perm.      | Temp.        |                    |                  |            | Perm.     | Temp.     |                |            | Perm.      | Temp.      |              |            | Perm.     | Temp.      |
| <b>26,760</b> | <b>23,338</b> | <b>815</b> | <b>2,239</b> | <b>299</b>         | <b>468</b>       | <b>406</b> | <b>15</b> | <b>39</b> | <b>1,099</b>   | <b>485</b> | <b>106</b> | <b>451</b> | <b>3,390</b> | <b>866</b> | <b>89</b> | <b>271</b> |
| 54.9          | 53.0          | 56.3       | 73.1         | 41.8               | 54.9             | 51.7       | 60.0      | 82.1      | 61.2           | 55.9       | 58.5       | 69.2       | 57.9         | 58.7       | 66.3      | 73.8       |
| 45.1          | 47.0          | 43.7       | 26.8         | 58.2               | 45.1             | 48.3       | 40.0      | 17.9      | 38.6           | 43.9       | 41.5       | 30.6       | 37.7         | 39.8       | 24.7      | 25.8       |
| 14.9          | 13.5          | 19.4       | 28.6         | 8.4                | 9.0              | 8.6        | 0.0       | 15.4      | 11.4           | 8.7        | 8.5        | 15.5       | 16.4         | 14.8       | 21.3      | 26.6       |
| 10.1          | 8.7           | 16.2       | 21.6         | 5.7                | 7.9              | 6.9        | 13.3      | 12.8      | 14.2           | 11.3       | 7.5        | 19.3       | 13.9         | 9.5        | 19.1      | 18.5       |
| 18.9          | 19.1          | 18.0       | 17.0         | 17.7               | 22.4             | 18.0       | 40.0      | 59.0      | 23.9           | 17.7       | 23.6       | 31.0       | 16.5         | 15.6       | 16.9      | 25.5       |
| 18.0          | 18.6          | 14.8       | 12.8         | 27.1               | 19.9             | 21.4       | 13.3      | 7.7       | 21.1           | 25.8       | 16.0       | 16.0       | 17.9         | 21.0       | 9.0       | 10.0       |
| 15.4          | 15.7          | 19.6       | 11.0         | 12.7               | 13.0             | 13.5       | 33.3      | 2.6       | 15.4           | 13.2       | 36.8       | 12.0       | 13.6         | 16.2       | 21.3      | 6.6        |
| 17.0          | 18.6          | 6.9        | 4.7          | 23.7               | 24.8             | 28.1       | 0.0       | 2.6       | 10.6           | 19.0       | 4.7        | 3.5        | 15.1         | 17.0       | 5.6       | 7.4        |
| 5.7           | 5.9           | 5.0        | 4.2          | 4.7                | 3.0              | 3.4        | 0.0       | 0.0       | 3.5            | 4.3        | 2.8        | 2.7        | 6.5          | 6.0        | 6.7       | 5.5        |
| 33.8          | 34.2          | 33.8       | 31.6         | 36.5               | 35.1             | 34.6       | 36.3      | 37.3      | 34.8           | 35.0       | 36.2       | 34.3       | 34.0         | 34.7       | 33.5      | 32.5       |
| 10.3          | 10.7          | 10.0       | 8.2          | 13.2               | 10.1             | 10.0       | 9.8       | 11.0      | 10.3           | 10.5       | 11.3       | 9.9        | 10.3         | 10.7       | 11.3      | 8.9        |
| 7.3           | 7.5           | 7.2        | 6.6          | 8.5                | 7.3              | 7.3        | 8.9       | 6.0       | 7.2            | 7.8        | 8.0        | 6.8        | 7.3          | 7.5        | 7.5       | 7.0        |
| 18.0          | 17.0          | 24.5       | 25.1         | 9.3                | 12.6             | 12.2       | 28.6      | 11.4      | 18.7           | 13.8       | 33.3       | 19.7       | 18.9         | 16.2       | 19.2      | 22.0       |
| 22.2          | 21.1          | 25.5       | 32.7         | 13.3               | 12.4             | 13.2       | 14.3      | 5.7       | 17.9           | 12.9       | 17.2       | 23.4       | 24.5         | 20.8       | 28.8      | 31.5       |
| 15.6          | 15.4          | 15.8       | 17.6         | 29.4               | 27.3             | 28.9       | 21.4      | 14.3      | 22.0           | 27.0       | 16.2       | 18.0       | 19.2         | 21.2       | 15.4      | 19.0       |
| 37.4          | 40.6          | 27.8       | 8.4          | 40.7               | 36.6             | 40.6       | 21.4      | 5.7       | 24.5           | 39.4       | 28.3       | 9.5        | 26.5         | 36.3       | 25.0      | 5.0        |
| 1.4           | 0.1           | 2.7        | 13.7         | 0.0                | 8.4              | 2.3        | 7.1       | 62.9      | 12.0           | 0.7        | 3.0        | 24.8       | 6.2          | 0.4        | 1.9       | 19.0       |
| 3.7           | 4.0           | 1.4        | 1.5          | 4.0                | 1.6              | 1.5        | 7.1       | 0.0       | 3.0            | 3.9        | 0.0        | 2.9        | 2.5          | 3.4        | 3.8       | 1.0        |
| 1.7           | 1.8           | 2.2        | 1.1          | 3.2                | 1.1              | 1.3        | 0.0       | 0.0       | 1.9            | 2.3        | 2.0        | 1.7        | 2.2          | 1.8        | 5.8       | 2.5        |
| 23.6          | 22.2          | 28.5       | 37.8         | 14.4               | 23.7             | 22.7       | 40.0      | 28.2      | 25.6           | 22.5       | 26.4       | 29.7       | 7.6          | 14.4       | 16.9      | 31.0       |
| 69.8          | 71.8          | 66.3       | 57.2         | 67.2               | 71.4             | 72.2       | 53.3      | 69.2      | 63.5           | 67.0       | 64.2       | 61.4       | 18.1         | 44.1       | 40.4      | 43.5       |
| 38.3          | 40.1          | 30.1       | 25.9         | 39.1               | 47.0             | 48.0       | 26.7      | 38.5      | 35.8           | 37.1       | 44.3       | 33.0       | 8.3          | 20.1       | 16.9      | 21.8       |
| 16.6          | 16.3          | 22.6       | 19.5         | 10.0               | 9.0              | 9.1        | 13.3      | 7.7       | 12.2           | 12.4       | 8.5        | 13.7       | 4.6          | 10.7       | 11.2      | 12.5       |
| 4.8           | 4.9           | 2.6        | 4.4          | 6.0                | 6.4              | 5.2        | 6.7       | 20.5      | 6.6            | 6.2        | 4.7        | 7.3        | 1.5          | 3.3        | 4.5       | 4.4        |
| 3.7           | 4.0           | 3.4        | 1.4          | 3.3                | 3.0              | 3.4        | 0.0       | 0.0       | 3.2            | 4.3        | 0.9        | 2.7        | 0.6          | 1.5        | 2.2       | 0.7        |
| 6.5           | 6.5           | 7.6        | 6.0          | 8.7                | 6.0              | 6.4        | 6.7       | 2.6       | 5.8            | 7.0        | 5.7        | 4.7        | 3.1          | 8.4        | 5.6       | 4.1        |
| 6.5           | 5.9           | 5.3        | 5.0          | 18.4               | 4.9              | 5.2        | 6.7       | 2.6       | 10.9           | 10.5       | 9.4        | 8.9        | 74.3         | 41.5       | 42.7      | 25.5       |
| 18.2          | 17.4          | 20.0       | 27.2         | 11.4               | 17.7             | 17.0       | 26.7      | 23.1      | 16.8           | 16.1       | 18.9       | 18.2       | 5.3          | 10.6       | 14.6      | 19.2       |
| 5.4           | 4.8           | 8.5        | 10.7         | 3.0                | 6.0              | 5.7        | 13.3      | 5.1       | 8.7            | 6.4        | 7.5        | 11.5       | 2.3          | 3.8        | 2.2       | 11.8       |
| 49.0          | 50.8          | 39.3       | 39.1         | 45.8               | 50.2             | 49.8       | 53.3      | 56.4      | 44.9           | 47.6       | 34.0       | 45.5       | 11.1         | 25.9       | 22.5      | 31.7       |
| 20.8          | 21.0          | 27.0       | 18.1         | 21.4               | 21.2             | 22.4       | 0.0       | 12.8      | 18.7           | 19.4       | 30.2       | 16.0       | 7.0          | 18.2       | 18.0      | 11.8       |
| <b>13,124</b> | <b>11,856</b> | <b>320</b> | <b>875</b>   | <b>137</b>         | <b>235</b>       | <b>202</b> | <b>8</b>  | <b>22</b> | <b>493</b>     | <b>231</b> | <b>36</b>  | <b>205</b> | <b>376</b>   | <b>224</b> | <b>20</b> | <b>86</b>  |
| 93.8          | 97.3          | 90.0       | 53.4         | 97.8               | 86.4             | 95.5       | 100.0     | 9.1       | 65.7           | 91.8       | 88.9       | 36.1       | 77.1         | 93.8       | 85.0      | 38.4       |
| 5.5           | 2.0           | 9.4        | 45.6         | 2.2                | 13.2             | 4.0        | 0.0       | 90.9      | 33.5           | 6.9        | 11.1       | 63.4       | 20.2         | 3.1        | 15.0      | 61.6       |
| 0.7           | 0.6           | 0.6        | 1.0          | 0.0                | 0.4              | 0.5        | 0.0       | 0.0       | 0.8            | 1.3        | 0.0        | 0.5        | 2.7          | 3.1        | 0.0       | 0.0        |

APPENDIX TABLE A-5. Doctorate recipients' financial resources in support of doctoral programs, by broad field and sex, 1998

| Financial Resource                             |   | Total # |        | Physical Sciences* |       | Engineering |       | Life Sciences |       | Social Sciences |       | Humanities |       | Education |       | Prof/Other Fields |       |
|------------------------------------------------|---|---------|--------|--------------------|-------|-------------|-------|---------------|-------|-----------------|-------|------------|-------|-----------|-------|-------------------|-------|
|                                                |   | Men     | Women  | Men                | Women | Men         | Women | Men           | Women | Men             | Women | Men        | Women | Men       | Women | Men               | Women |
| Loans (from any source)                        | N | 5,292   | 4,653  | 719                | 234   | 616         | 74    | 879           | 713   | 1,053           | 1,400 | 1,022      | 913   | 663       | 1,033 | 340               | 286   |
|                                                | V | 25.1%   | 30.7%  | 15.8%              | 16.5% | 14.2%       | 11.2% | 22.7%         | 21.5% | 38.4%           | 44.1% | 40.7%      | 37.8% | 33.7%     | 31.2% | 30.2%             | 34.0% |
|                                                | H | 100.0%  | 100.0% | 13.6%              | 5.0%  | 11.6%       | 1.6%  | 16.6%         | 15.3% | 19.9%           | 30.1% | 19.3%      | 19.6% | 12.5%     | 22.2% | 6.4%              | 6.1%  |
| Foreign (non-U.S.) Support                     | N | 2,012   | 763    | 341                | 69    | 593         | 68    | 362           | 182   | 271             | 143   | 224        | 182   | 94        | 86    | 127               | 33    |
|                                                | V | 9.5%    | 5.0%   | 7.5%               | 4.9%  | 13.7%       | 10.3% | 9.4%          | 5.5%  | 9.9%            | 4.5%  | 8.9%       | 7.5%  | 4.8%      | 2.6%  | 11.3%             | 3.9%  |
|                                                | H | 100.0%  | 100.0% | 16.9%              | 9.0%  | 29.5%       | 8.9%  | 18.0%         | 23.9% | 13.5%           | 18.7% | 11.1%      | 23.9% | 4.7%      | 11.3% | 6.3%              | 4.3%  |
| Fellowship, Scholarship                        | N | 8,668   | 6,504  | 1,812              | 605   | 1,494       | 296   | 1,785         | 1,645 | 1,260           | 1,412 | 1,422      | 1,344 | 442       | 847   | 453               | 355   |
|                                                | V | 41.1%   | 43.0%  | 39.9%              | 42.6% | 34.5%       | 44.8% | 46.1%         | 49.7% | 45.9%           | 44.4% | 56.7%      | 55.7% | 22.5%     | 25.6% | 40.3%             | 42.2% |
|                                                | H | 100.0%  | 100.0% | 20.9%              | 9.3%  | 17.2%       | 4.6%  | 20.6%         | 25.3% | 14.5%           | 21.7% | 16.4%      | 20.7% | 5.1%      | 13.0% | 5.2%              | 5.5%  |
| Dissertation Grant                             | N | 1,952   | 2,096  | 217                | 74    | 117         | 37    | 320           | 401   | 468             | 612   | 610        | 582   | 95        | 253   | 125               | 137   |
|                                                | V | 9.3%    | 13.8%  | 4.8%               | 5.2%  | 2.7%        | 5.6%  | 8.3%          | 12.1% | 17.1%           | 19.3% | 24.3%      | 24.1% | 4.8%      | 7.6%  | 11.1%             | 16.3% |
|                                                | H | 100.0%  | 100.0% | 11.1%              | 3.5%  | 6.0%        | 1.8%  | 16.4%         | 19.1% | 24.0%           | 29.2% | 31.3%      | 27.8% | 4.9%      | 12.1% | 6.4%              | 6.5%  |
| Teaching Assistant                             | N | 13,226  | 8,861  | 3,676              | 1,155 | 2,345       | 392   | 1,819         | 1,635 | 2,047           | 2,172 | 2,041      | 1,992 | 554       | 971   | 744               | 544   |
|                                                | V | 62.7%   | 58.5%  | 81.0%              | 81.3% | 54.1%       | 59.4% | 47.0%         | 49.4% | 74.6%           | 68.4% | 81.3%      | 82.5% | 28.2%     | 29.3% | 66.1%             | 64.6% |
|                                                | H | 100.0%  | 100.0% | 27.8%              | 13.0% | 17.7%       | 4.4%  | 13.8%         | 18.5% | 15.5%           | 24.5% | 15.4%      | 22.5% | 4.2%      | 11.0% | 5.6%              | 6.1%  |
| Research Assistant                             | N | 9,935   | 5,685  | 2,766              | 839   | 2,772       | 409   | 2,023         | 1,629 | 1,103           | 1,347 | 535        | 557   | 322       | 587   | 414               | 317   |
|                                                | V | 47.1%   | 37.6%  | 60.9%              | 59.1% | 64.0%       | 62.0% | 52.3%         | 49.2% | 40.2%           | 42.4% | 21.3%      | 23.1% | 29.9%     | 0.0%  | 28.2%             | 37.6% |
|                                                | H | 100.0%  | 100.0% | 27.8%              | 14.8% | 27.9%       | 7.2%  | 20.4%         | 28.7% | 11.1%           | 23.7% | 5.4%       | 9.8%  | 5.9%      | 0.0%  | 3.2%              | 5.6%  |
| Traineeship                                    | N | 863     | 1,010  | 85                 | 48    | 74          | 22    | 510           | 576   | 149             | 293   | 21         | 23    | 13        | 35    | 11                | 13    |
|                                                | V | 4.1%    | 6.7%   | 1.9%               | 3.4%  | 1.7%        | 3.3%  | 13.2%         | 17.4% | 5.4%            | 9.2%  | 0.8%       | 1.0%  | 0.7%      | 1.1%  | 1.0%              | 1.5%  |
|                                                | H | 100.0%  | 100.0% | 9.8%               | 4.8%  | 8.6%        | 2.2%  | 59.1%         | 57.0% | 17.3%           | 29.0% | 2.4%       | 2.3%  | 1.5%      | 3.5%  | 1.3%              | 1.3%  |
| Internship or Residency                        | N | 958     | 1,134  | 156                | 39    | 239         | 22    | 78            | 52    | 348             | 805   | 44         | 50    | 65        | 143   | 28                | 23    |
|                                                | V | 4.5%    | 7.5%   | 3.4%               | 2.7%  | 5.5%        | 3.3%  | 2.0%          | 1.6%  | 12.7%           | 25.3% | 1.8%       | 2.1%  | 3.3%      | 4.3%  | 2.5%              | 2.7%  |
|                                                | H | 100.0%  | 100.0% | 16.3%              | 3.4%  | 24.9%       | 1.9%  | 8.1%          | 4.6%  | 36.3%           | 71.0% | 4.6%       | 4.4%  | 6.8%      | 12.6% | 2.9%              | 2.0%  |
| Personal Savings                               | N | 8,540   | 6,978  | 1,402              | 427   | 1,513       | 208   | 1,433         | 1,327 | 1,225           | 1,530 | 1,216      | 1,057 | 1,194     | 1,981 | 557               | 448   |
|                                                | V | 40.5%   | 46.1%  | 30.9%              | 30.1% | 34.9%       | 31.5% | 37.0%         | 40.1% | 44.7%           | 48.2% | 48.4%      | 43.8% | 60.8%     | 59.8% | 49.4%             | 53.2% |
|                                                | H | 100.0%  | 100.0% | 16.4%              | 6.1%  | 17.7%       | 3.0%  | 16.8%         | 19.0% | 14.3%           | 21.9% | 14.2%      | 15.1% | 14.0%     | 28.4% | 6.5%              | 6.4%  |
| Other Personal Earnings During Graduate School | N | 6,844   | 6,447  | 917                | 261   | 907         | 116   | 860           | 894   | 1,187           | 1,568 | 1,376      | 1,293 | 1,091     | 1,879 | 506               | 436   |
|                                                | V | 32.5%   | 42.6%  | 20.2%              | 18.4% | 20.9%       | 17.6% | 22.2%         | 27.0% | 43.3%           | 49.4% | 54.8%      | 53.6% | 55.5%     | 56.7% | 45.0%             | 51.8% |
|                                                | H | 100.0%  | 100.0% | 13.4%              | 4.0%  | 13.3%       | 1.8%  | 12.6%         | 13.9% | 17.3%           | 24.3% | 20.1%      | 20.1% | 15.9%     | 29.1% | 7.4%              | 6.8%  |
| Family Earnings or Savings‡                    | N | 7,328   | 6,807  | 1,179              | 415   | 1,148       | 200   | 1,338         | 1,322 | 1,183           | 1,628 | 1,195      | 1,202 | 835       | 1,641 | 450               | 399   |
|                                                | V | 34.8%   | 45.0%  | 26.0%              | 29.2% | 26.5%       | 30.3% | 34.6%         | 39.9% | 43.1%           | 51.2% | 47.6%      | 49.8% | 42.5%     | 49.5% | 40.0%             | 47.4% |
|                                                | H | 100.0%  | 100.0% | 16.1%              | 6.1%  | 15.7%       | 2.9%  | 18.3%         | 19.4% | 16.1%           | 23.9% | 16.3%      | 17.7% | 11.4%     | 24.1% | 6.1%              | 5.9%  |
| Employer Reimbursement/ Assistance             | N | 2,584   | 2,099  | 317                | 100   | 605         | 62    | 301           | 367   | 306             | 342   | 262        | 220   | 589       | 880   | 204               | 128   |
|                                                | V | 12.3%   | 13.9%  | 7.0%               | 7.0%  | 14.0%       | 9.4%  | 7.8%          | 11.1% | 11.2%           | 10.8% | 10.4%      | 9.1%  | 30.0%     | 26.6% | 18.1%             | 15.2% |
|                                                | H | 100.0%  | 100.0% | 12.3%              | 4.8%  | 23.4%       | 3.0%  | 11.6%         | 17.5% | 11.8%           | 16.3% | 10.1%      | 10.5% | 22.8%     | 41.9% | 7.9%              | 6.1%  |
| Other                                          | N | 648     | 650    | 78                 | 35    | 88          | 11    | 95            | 118   | 100             | 132   | 98         | 108   | 138       | 212   | 51                | 34    |
|                                                | V | 3.1%    | 4.3%   | 1.7%               | 2.5%  | 2.0%        | 1.7%  | 2.5%          | 3.6%  | 3.6%            | 4.2%  | 3.9%       | 4.5%  | 7.0%      | 6.4%  | 4.5%              | 4.0%  |
|                                                | H | 100.0%  | 100.0% | 12.0%              | 5.4%  | 13.6%       | 1.7%  | 14.7%         | 18.2% | 15.4%           | 20.3% | 15.1%      | 16.6% | 21.3%     | 32.6% | 7.9%              | 5.2%  |
| Unduplicated Total***                          | N | 21,086  | 15,138 | 4,539              | 1,420 | 4,333       | 660   | 3,870         | 3,312 | 2,743           | 3,177 | 2,510      | 2,414 | 1,965     | 3,313 | 1,126             | 842   |

NOTE: In this table a recipient counts once in each source category from which he or she received support. Since students indicate multiple sources of support, the vertical percentages sum to more than 100 percent. (Data on the "primary" source of support for doctorate recipients are presented in the body of the Summary Report.) Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. Furthermore, because the form of this question and its response categories changed in 1998, the ability to make trend comparison with previous cycles appears to be broken (except for teaching assistantships, research assistantships, and Foreign Support); see Appendix C: Technical Notes for details.

#V denotes vertical percentage; H denotes horizontal percentage.

\*Includes mathematics and computer sciences.

\*\*Excludes 174 individuals for whom gender was not reported.

\*\*\*The 6,429 Ph.D.s who did not report sources of support are omitted from this total. Percentages are based only on known responses.

‡This category includes spouses and significant others.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-6. State of doctoral institution of doctorate recipients, by broad field and gender, 1998

| State             | Total** |        | Physical Sciences* |       | Engineering |       | Life Sciences |       | Social Sciences |       | Humanities |       | Education |       | Prof./Other Fields |       |
|-------------------|---------|--------|--------------------|-------|-------------|-------|---------------|-------|-----------------|-------|------------|-------|-----------|-------|--------------------|-------|
|                   | Men     | Women  | Men                | Women | Men         | Women | Men           | Women | Men             | Women | Men        | Women | Men       | Women | Men                | Women |
| U.S. Total ★      | 24,653  | 17,856 | 5,104              | 1,600 | 5,108       | 769   | 4,640         | 3,876 | 3,206           | 3,838 | 2,814      | 2,675 | 2,422     | 4,120 | 1,359              | 978   |
| Alabama           | 337     | 237    | 62                 | 17    | 78          | 8     | 87            | 67    | 25              | 39    | 9          | 12    | 54        | 80    | 22                 | 14    |
| Alaska            | 25      | 9      | 10                 | 2     | 4           | 0     | 9             | 7     | 0               | 0     | 1          | 0     | 1         | 0     | 0                  | 0     |
| Arizona           | 468     | 290    | 103                | 36    | 91          | 9     | 73            | 50    | 59              | 63    | 63         | 44    | 54        | 71    | 25                 | 17    |
| Arkansas          | 106     | 63     | 13                 | 1     | 10          | 1     | 35            | 17    | 2               | 5     | 10         | 3     | 29        | 32    | 7                  | 4     |
| California        | 2,769   | 1,933  | 663                | 192   | 630         | 101   | 466           | 384   | 424             | 564   | 320        | 306   | 154       | 301   | 112                | 85    |
| Colorado          | 453     | 307    | 128                | 33    | 102         | 21    | 78            | 71    | 47              | 59    | 37         | 30    | 40        | 72    | 21                 | 21    |
| Connecticut       | 371     | 264    | 78                 | 27    | 48          | 3     | 79            | 77    | 63              | 66    | 76         | 61    | 15        | 21    | 12                 | 9     |
| Delaware          | 102     | 71     | 28                 | 7     | 26          | 5     | 9             | 7     | 13              | 14    | 7          | 7     | 18        | 30    | 1                  | 1     |
| Dist. of Columbia | 254     | 248    | 43                 | 16    | 32          | 7     | 29            | 37    | 51              | 72    | 56         | 52    | 22        | 41    | 21                 | 23    |
| Florida           | 1,019   | 915    | 178                | 68    | 169         | 16    | 132           | 94    | 137             | 217   | 74         | 57    | 227       | 396   | 102                | 67    |
| Georgia           | 571     | 418    | 82                 | 32    | 153         | 24    | 121           | 84    | 60              | 80    | 44         | 61    | 73        | 120   | 38                 | 17    |
| Hawaii            | 101     | 58     | 30                 | 8     | 6           | 1     | 26            | 21    | 21              | 15    | 16         | 9     | 2         | 3     | 0                  | 1     |
| Idaho             | 63      | 27     | 13                 | 4     | 7           | 2     | 18            | 6     | 1               | 0     | 2          | 1     | 19        | 14    | 3                  | 0     |
| Illinois          | 1,339   | 914    | 288                | 82    | 296         | 52    | 191           | 186   | 208             | 218   | 184        | 148   | 114       | 186   | 58                 | 42    |
| Indiana           | 648     | 433    | 140                | 46    | 149         | 21    | 107           | 92    | 64              | 80    | 102        | 92    | 54        | 82    | 32                 | 20    |
| Iowa              | 417     | 231    | 83                 | 28    | 87          | 17    | 102           | 54    | 50              | 36    | 31         | 28    | 52        | 56    | 12                 | 12    |
| Kansas            | 281     | 204    | 41                 | 22    | 41          | 9     | 73            | 32    | 40              | 41    | 34         | 33    | 43        | 56    | 9                  | 11    |
| Kentucky          | 207     | 135    | 34                 | 10    | 27          | 2     | 54            | 36    | 18              | 25    | 39         | 24    | 19        | 30    | 16                 | 8     |
| Louisiana         | 326     | 229    | 67                 | 13    | 43          | 6     | 78            | 73    | 41              | 34    | 52         | 37    | 26        | 56    | 19                 | 10    |
| Maine             | 21      | 29     | 2                  | 4     | 3           | 2     | 7             | 9     | 2               | 5     | 3          | 1     | 3         | 8     | 1                  | 0     |
| Maryland          | 560     | 441    | 125                | 42    | 122         | 22    | 134           | 149   | 79              | 85    | 57         | 63    | 20        | 57    | 23                 | 23    |
| Massachusetts     | 1,311   | 849    | 305                | 85    | 311         | 60    | 226           | 219   | 188             | 182   | 145        | 139   | 67        | 109   | 69                 | 55    |
| Michigan          | 869     | 634    | 170                | 71    | 237         | 36    | 147           | 146   | 112             | 147   | 80         | 82    | 76        | 123   | 47                 | 29    |
| Minnesota         | 493     | 340    | 81                 | 23    | 90          | 7     | 113           | 83    | 44              | 55    | 59         | 42    | 62        | 104   | 44                 | 26    |
| Mississippi       | 211     | 138    | 28                 | 13    | 22          | 3     | 44            | 16    | 27              | 12    | 11         | 8     | 48        | 76    | 31                 | 10    |
| Missouri          | 463     | 315    | 80                 | 23    | 102         | 7     | 88            | 73    | 56              | 62    | 38         | 48    | 62        | 83    | 37                 | 19    |
| Montana           | 61      | 36     | 16                 | 2     | 3           | 1     | 22            | 14    | 6               | 4     | 0          | 0     | 13        | 15    | 1                  | 0     |
| Nebraska          | 165     | 149    | 24                 | 12    | 12          | 2     | 57            | 42    | 21              | 28    | 14         | 14    | 21        | 39    | 16                 | 12    |
| Nevada            | 52      | 34     | 19                 | 7     | 8           | 1     | 7             | 7     | 11              | 9     | 2          | 4     | 3         | 6     | 2                  | 0     |
| New Hampshire     | 71      | 48     | 28                 | 11    | 8           | 2     | 24            | 14    | 3               | 7     | 4          | 8     | 4         | 6     | 0                  | 0     |
| New Jersey        | 498     | 330    | 122                | 37    | 119         | 20    | 67            | 68    | 62              | 65    | 96         | 90    | 13        | 33    | 19                 | 17    |
| New Mexico        | 190     | 115    | 48                 | 10    | 48          | 7     | 30            | 16    | 18              | 21    | 14         | 15    | 23        | 40    | 9                  | 6     |
| New York          | 2,013   | 1,752  | 423                | 136   | 325         | 48    | 375           | 330   | 320             | 442   | 313        | 406   | 160       | 290   | 97                 | 100   |
| North Carolina    | 618     | 465    | 137                | 56    | 119         | 24    | 149           | 149   | 81              | 79    | 68         | 52    | 46        | 85    | 18                 | 20    |
| North Dakota      | 48      | 37     | 9                  | 3     | 4           | 0     | 27            | 5     | 3               | 9     | 1          | 3     | 4         | 17    | 0                  | 0     |
| Ohio              | 1,082   | 778    | 217                | 55    | 275         | 30    | 182           | 175   | 101             | 152   | 113        | 109   | 128       | 213   | 66                 | 44    |
| Oklahoma          | 241     | 160    | 32                 | 14    | 47          | 10    | 50            | 18    | 23              | 27    | 31         | 20    | 40        | 55    | 18                 | 16    |
| Oregon            | 246     | 180    | 50                 | 21    | 30          | 7     | 88            | 61    | 28              | 20    | 20         | 24    | 22        | 41    | 8                  | 6     |
| Pennsylvania      | 1,288   | 933    | 216                | 71    | 346         | 55    | 178           | 174   | 164             | 187   | 146        | 156   | 146       | 222   | 92                 | 68    |
| Puerto Rico       | 22      | 81     | 1                  | 4     | 1           | 0     | 5             | 1     | 7               | 49    | 2          | 3     | 6         | 24    | 0                  | 0     |
| Rhode Island      | 139     | 110    | 59                 | 30    | 14          | 3     | 11            | 16    | 21              | 26    | 31         | 33    | 0         | 0     | 3                  | 2     |
| South Carolina    | 202     | 167    | 46                 | 8     | 32          | 5     | 52            | 49    | 20              | 22    | 19         | 22    | 23        | 46    | 10                 | 15    |
| South Dakota      | 33      | 37     | 1                  | 1     | 2           | 0     | 4             | 4     | 4               | 8     | 0          | 0     | 22        | 24    | 0                  | 0     |
| Tennessee         | 362     | 280    | 38                 | 19    | 55          | 8     | 72            | 63    | 49              | 50    | 51         | 30    | 65        | 91    | 32                 | 19    |
| Texas             | 1,644   | 1,091  | 327                | 67    | 369         | 37    | 304           | 258   | 199             | 193   | 174        | 152   | 156       | 317   | 115                | 67    |
| Utah              | 235     | 114    | 53                 | 10    | 56          | 8     | 48            | 26    | 41              | 30    | 11         | 6     | 16        | 26    | 10                 | 8     |
| Vermont           | 27      | 35     | 2                  | 2     | 7           | 2     | 13            | 7     | 4               | 11    | 0          | 3     | 1         | 10    | 0                  | 0     |
| Virginia          | 548     | 434    | 111                | 43    | 131         | 19    | 105           | 86    | 57              | 77    | 37         | 32    | 76        | 161   | 31                 | 16    |
| Washington        | 390     | 303    | 92                 | 30    | 71          | 15    | 88            | 80    | 41              | 53    | 44         | 43    | 37        | 63    | 17                 | 19    |
| West Virginia     | 94      | 57     | 14                 | 1     | 24          | 1     | 30            | 17    | 9               | 13    | 4          | 1     | 13        | 24    | 0                  | 0     |
| Wisconsin         | 557     | 377    | 122                | 38    | 113         | 22    | 118           | 101   | 76              | 76    | 69         | 61    | 26        | 60    | 33                 | 19    |
| Wyoming           | 42      | 21     | 22                 | 7     | 3           | 0     | 8             | 5     | 5               | 4     | 0          | 0     | 4         | 5     | 0                  | 0     |

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.

\*\*Excludes 174 individuals for whom gender was not reported. \*Includes mathematics and computer sciences.

★Includes the 50 states, District of Columbia, and Puerto Rico.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Institutions granting research doctorates, by major field, 1998

| State/Institution                 | 1998 Total | Physics and Astronomy | Chemistry | Earth, Atmos., and Marine Sciences | Math and Computer Sciences | Engineering | Biosciences | Health Sciences | Agricultural Sci. | Psychology | Other Social Sciences | History | Eng. and Amer. Language and Lit. | Other Humanities | Education | Professional/Other/Unknown Fields* |
|-----------------------------------|------------|-----------------------|-----------|------------------------------------|----------------------------|-------------|-------------|-----------------|-------------------|------------|-----------------------|---------|----------------------------------|------------------|-----------|------------------------------------|
| TOTAL ALL INSTITUTIONS            | 42,683     | 1,584                 | 2,217     | 838                                | 2,100                      | 5,919       | 5,848       | 1,500           | 1,192             | 3,676      | 3,399                 | 988     | 1,076                            | 3,435            | 6,559     | 2,352                              |
| ALABAMA                           | 574        | 29                    | 19        | 6                                  | 25                         | 86          | 79          | 45              | 30                | 48         | 16                    | 7       | 9                                | 5                | 134       | 12                                 |
| Alabama A&M University            | 10         | 6                     | 0         | 0                                  | 0                          | 1           | 1           | 0               | 2                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Auburn University                 | 192        | 7                     | 13        | 1                                  | 11                         | 36          | 10          | 6               | 28                | 22         | 9                     | 2       | 3                                | 0                | 37        | 7                                  |
| United States Sports Academy      | 19         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 19        | 0                                  |
| Univ of Alabama-Birmingham        | 141        | 4                     | 2         | 0                                  | 5                          | 9           | 50          | 33              | 0                 | 16         | 2                     | 0       | 0                                | 0                | 20        | 0                                  |
| Univ of Alabama-Huntsville        | 41         | 7                     | 1         | 4                                  | 6                          | 23          | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Alabama                   | 150        | 5                     | 3         | 0                                  | 3                          | 17          | 8           | 2               | 0                 | 10         | 5                     | 5       | 6                                | 5                | 52        | 29                                 |
| Univ of South Alabama             | 21         | 0                     | 0         | 1                                  | 0                          | 0           | 10          | 4               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 6         | 0                                  |
| ALASKA                            | 34         | 5                     | 0         | 7                                  | 0                          | 4           | 13          | 0               | 3                 | 0          | 0                     | 0       | 0                                | 1                | 1         | 0                                  |
| Univ of Alaska                    | 34         | 5                     | 0         | 7                                  | 0                          | 4           | 13          | 0               | 3                 | 0          | 0                     | 0       | 0                                | 1                | 1         | 0                                  |
| ARIZONA                           | 759        | 46                    | 26        | 37                                 | 30                         | 100         | 76          | 17              | 31                | 57         | 65                    | 20      | 18                               | 69               | 125       | 42                                 |
| Arizona State Univ                | 292        | 10                    | 7         | 7                                  | 16                         | 59          | 20          | 6               | 0                 | 32         | 21                    | 8       | 9                                | 22               | 48        | 27                                 |
| Northern Arizona Univ             | 56         | 0                     | 0         | 0                                  | 0                          | 0           | 3           | 0               | 2                 | 0          | 6                     | 3       | 1                                | 1                | 40        | 0                                  |
| Univ of Arizona                   | 411        | 36                    | 19        | 30                                 | 14                         | 41          | 53          | 11              | 29                | 25         | 38                    | 9       | 8                                | 46               | 37        | 15                                 |
| ARKANSAS                          | 169        | 5                     | 6         | 2                                  | 1                          | 11          | 25          | 7               | 20                | 7          | 0                     | 8       | 1                                | 4                | 61        | 11                                 |
| Arkansas State Univ               | 2          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 2         | 0                                  |
| U of Arkansas-Fayetteville        | 122        | 4                     | 6         | 0                                  | 1                          | 11          | 11          | 7               | 20                | 7          | 0                     | 8       | 1                                | 4                | 31        | 11                                 |
| U of Arkansas-Little Rock         | 31         | 1                     | 0         | 2                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 28        | 0                                  |
| U of Arkansas-Med Sci Campus      | 14         | 0                     | 0         | 0                                  | 0                          | 0           | 14          | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| CALIFORNIA                        | 4,731      | 212                   | 283       | 119                                | 250                        | 736         | 665         | 125             | 64                | 564        | 433                   | 142     | 124                              | 360              | 457       | 197                                |
| Azusa Pacific University          | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 3         | 1                                  |
| Biola University                  | 16         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 14         | 0                     | 0       | 0                                | 0                | 2         | 0                                  |
| California Inst of Technology     | 191        | 48                    | 30        | 17                                 | 21                         | 45          | 24          | 0               | 0                 | 1          | 4                     | 0       | 0                                | 0                | 1         | 0                                  |
| Calif Sch Prof Psych-Alameda      | 63         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 62         | 0                     | 0       | 0                                | 0                | 0         | 1                                  |
| Calif. Sch Prof Psych-Fresno      | 37         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 37         | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Calif Sch Prof Psych-LA           | 77         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 75         | 0                     | 0       | 0                                | 0                | 1         | 1                                  |
| Calif Sch Prof Psych-San Diego    | 79         | 0                     | 0         | 0                                  | 0                          | 1           | 0           | 0               | 0                 | 76         | 0                     | 0       | 0                                | 1                | 1         | 0                                  |
| Claremont Graduate School         | 95         | 0                     | 0         | 0                                  | 3                          | 2           | 0           | 0               | 0                 | 14         | 28                    | 2       | 7                                | 14               | 15        | 10                                 |
| Fielding Institute                | 38         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 23         | 2                     | 0       | 0                                | 0                | 2         | 11                                 |
| Fuller Theological Seminary       | 31         | 0                     | 0         | 0                                  | 1                          | 0           | 0           | 0               | 0                 | 22         | 0                     | 0       | 0                                | 3                | 0         | 5                                  |
| Graduate Theological Union        | 22         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 11               | 1         | 10                                 |
| La Sierra Univ                    | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 1         | 3                                  |
| Loma Linda Univ                   | 12         | 0                     | 0         | 0                                  | 0                          | 0           | 8           | 4               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Naval Postgraduate School         | 10         | 1                     | 0         | 1                                  | 2                          | 6           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Pacific Grad School of Psychology | 27         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 27         | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Pepperdine Univ                   | 33         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 1                     | 0       | 0                                | 0                | 32        | 0                                  |
| Rand Grad Sch of Policy Studies   | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 4                     | 0       | 0                                | 0                | 0         | 0                                  |
| Scripps Institute                 | 22         | 0                     | 9         | 0                                  | 0                          | 0           | 13          | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| San Diego State Univ              | 32         | 0                     | 0         | 0                                  | 0                          | 1           | 7           | 5               | 0                 | 11         | 1                     | 0       | 0                                | 0                | 7         | 0                                  |
| School of Theology at Claremont   | 2          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 1          | 0                     | 0       | 0                                | 0                | 1         | 0                                  |
| Stanford University               | 595        | 22                    | 40        | 28                                 | 48                         | 177         | 75          | 0               | 2                 | 13         | 52                    | 16      | 16                               | 54               | 28        | 24                                 |
| U.S. International Univ           | 39         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 23         | 1                     | 0       | 0                                | 1                | 4         | 10                                 |
| Univ of California-Berkeley       | 748        | 37                    | 54        | 10                                 | 55                         | 153         | 92          | 28              | 21                | 18         | 87                    | 35      | 29                               | 74               | 20        | 35                                 |
| Univ of California-Davis          | 337        | 11                    | 24        | 5                                  | 9                          | 42          | 129         | 10              | 36                | 8          | 23                    | 8       | 7                                | 8                | 17        | 0                                  |
| Univ of California-Irvine         | 196        | 11                    | 28        | 1                                  | 12                         | 36          | 39          | 2               | 0                 | 7          | 20                    | 8       | 10                               | 17               | 1         | 4                                  |
| Univ of California-Los Angeles    | 605        | 23                    | 30        | 18                                 | 35                         | 75          | 66          | 30              | 0                 | 19         | 80                    | 40      | 14                               | 76               | 64        | 35                                 |
| Univ of California-Riverside      | 122        | 4                     | 7         | 3                                  | 10                         | 0           | 27          | 1               | 3                 | 7          | 22                    | 8       | 7                                | 10               | 12        | 1                                  |
| Univ of California-San Diego      | 268        | 12                    | 24        | 15                                 | 19                         | 50          | 62          | 5               | 2                 | 23         | 28                    | 6       | 4                                | 11               | 2         | 5                                  |
| Univ of California-San Francisco  | 91         | 1                     | 8         | 0                                  | 0                          | 3           | 48          | 21              | 0                 | 2          | 6                     | 1       | 0                                | 0                | 0         | 1                                  |
| Univ of California-Santa Barbara  | 263        | 20                    | 11        | 6                                  | 18                         | 61          | 19          | 1               | 0                 | 18         | 27                    | 9       | 15                               | 34               | 20        | 4                                  |
| Univ of California-Santa Cruz     | 87         | 15                    | 7         | 6                                  | 3                          | 7           | 20          | 0               | 0                 | 2          | 10                    | 3       | 7                                | 5                | 2         | 0                                  |
| Univ of La Verne                  | 41         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 1          | 0                     | 0       | 0                                | 0                | 40        | 0                                  |
| Univ of the Pacific               | 10         | 0                     | 0         | 0                                  | 0                          | 0           | 1           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 9         | 0                                  |
| Univ of San Diego                 | 22         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 6               | 0                 | 0          | 1                     | 0       | 0                                | 0                | 14        | 1                                  |
| Univ of San Francisco             | 58         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 3          | 1                     | 0       | 0                                | 0                | 53        | 1                                  |
| Univ of Santa Clara               | 2          | 0                     | 0         | 0                                  | 0                          | 2           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Southern California       | 403        | 7                     | 11        | 9                                  | 14                         | 75          | 35          | 12              | 0                 | 12         | 35                    | 6       | 8                                | 41               | 104       | 34                                 |
| Wright Institute, The             | 45         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 45         | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| COLORADO                          | 764        | 31                    | 44        | 54                                 | 33                         | 126         | 93          | 23              | 33                | 49         | 57                    | 8       | 15                               | 44               | 112       | 42                                 |
| Colorado School of Mines          | 37         | 0                     | 3         | 13                                 | 1                          | 17          | 0           | 0               | 0                 | 0          | 3                     | 0       | 0                                | 0                | 0         | 0                                  |
| Colorado State Univ               | 212        | 4                     | 20        | 15                                 | 7                          | 35          | 41          | 9               | 33                | 16         | 8                     | 0       | 0                                | 0                | 21        | 3                                  |
| Univ of Colorado                  | 375        | 26                    | 18        | 25                                 | 21                         | 73          | 52          | 13              | 0                 | 11         | 36                    | 7       | 9                                | 29               | 21        | 34                                 |
| Univ of Denver                    | 74         | 1                     | 2         | 1                                  | 3                          | 1           | 0           | 0               | 0                 | 14         | 9                     | 1       | 6                                | 4                | 27        | 5                                  |
| Univ of Northern Colorado         | 66         | 0                     | 1         | 0                                  | 1                          | 0           | 0           | 1               | 0                 | 8          | 1                     | 0       | 0                                | 11               | 43        | 0                                  |

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\*Includes 20 respondents for whom doctoral field is unknown.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Institutions granting research doctorates, by major field, 1998

| State/Institution                 | 1998 Total | Physics and Astronomy | Chemistry | Earth, Atmos., and Marine Sciences | Math and Computer Sciences | Engineering | Biosciences | Health Sciences | Agricultural Sci. | Psychology | Other Social Sciences | History | Eng. and Amer. Language and Lit. | Other Humanities | Education | Professional/Other/Unknown Fields* |
|-----------------------------------|------------|-----------------------|-----------|------------------------------------|----------------------------|-------------|-------------|-----------------|-------------------|------------|-----------------------|---------|----------------------------------|------------------|-----------|------------------------------------|
| CONNECTICUT                       | 638        | 28                    | 37        | 10                                 | 31                         | 53          | 129         | 20              | 7                 | 44         | 85                    | 34      | 13                               | 90               | 36        | 21                                 |
| Univ of Connecticut               | 254        | 8                     | 14        | 4                                  | 16                         | 34          | 50          | 10              | 3                 | 22         | 29                    | 5       | 4                                | 11               | 35        | 9                                  |
| Univ of New Haven                 | 3          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 3                                  |
| Wesleyan Univ                     | 19         | 3                     | 5         | 0                                  | 3                          | 0           | 6           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 2                | 0         | 0                                  |
| Yale Univ                         | 362        | 17                    | 18        | 6                                  | 12                         | 19          | 73          | 10              | 4                 | 22         | 56                    | 29      | 9                                | 77               | 1         | 9                                  |
| DELAWARE                          | 173        | 5                     | 13        | 10                                 | 7                          | 31          | 14          | 1               | 1                 | 9          | 18                    | 2       | 3                                | 9                | 48        | 2                                  |
| Univ of Delaware                  | 144        | 5                     | 13        | 10                                 | 7                          | 31          | 14          | 1               | 1                 | 9          | 18                    | 2       | 3                                | 9                | 19        | 2                                  |
| Wilmington College                | 29         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 29        | 0                                  |
| DISTRICT OF COLUMBIA              | 504        | 15                    | 21        | 2                                  | 21                         | 39          | 52          | 13              | 1                 | 53         | 70                    | 25      | 8                                | 75               | 64        | 45                                 |
| American Univ                     | 62         | 4                     | 3         | 0                                  | 1                          | 0           | 2           | 0               | 0                 | 8          | 27                    | 6       | 0                                | 0                | 9         | 2                                  |
| Catholic Univ of America          | 109        | 5                     | 6         | 0                                  | 0                          | 9           | 6           | 8               | 0                 | 12         | 4                     | 4       | 1                                | 33               | 4         | 17                                 |
| Gallaudet Univ                    | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 2          | 0                     | 0       | 0                                | 0                | 3         | 0                                  |
| George Washington Univ            | 176        | 5                     | 3         | 2                                  | 18                         | 27          | 15          | 0               | 0                 | 14         | 15                    | 2       | 5                                | 10               | 44        | 16                                 |
| Georgetown Univ                   | 80         | 0                     | 3         | 0                                  | 0                          | 0           | 16          | 0               | 0                 | 5          | 13                    | 11      | 0                                | 32               | 0         | 0                                  |
| Howard Univ                       | 72         | 1                     | 6         | 0                                  | 2                          | 3           | 13          | 5               | 1                 | 12         | 11                    | 2       | 2                                | 0                | 4         | 10                                 |
| FLORIDA                           | 1,945      | 40                    | 84        | 28                                 | 95                         | 185         | 128         | 42              | 57                | 275        | 85                    | 19      | 29                               | 83               | 624       | 171                                |
| Barry Univ                        | 10         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 5         | 5                                  |
| Caribbean Ctr Adv Stud-Miami      | 34         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 31         | 0                     | 0       | 0                                | 3                | 0         | 0                                  |
| Florida A&M Univ                  | 2          | 0                     | 0         | 0                                  | 0                          | 1           | 1           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Florida Atlantic Univ             | 49         | 2                     | 0         | 0                                  | 0                          | 14          | 1           | 0               | 0                 | 2          | 1                     | 0       | 0                                | 1                | 21        | 7                                  |
| Florida Inst of Technology        | 20         | 1                     | 1         | 0                                  | 6                          | 8           | 2           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 2         | 0                                  |
| Florida International Univ        | 71         | 0                     | 0         | 0                                  | 2                          | 4           | 3           | 0               | 0                 | 5          | 11                    | 0       | 0                                | 0                | 32        | 14                                 |
| Florida State Univ                | 306        | 16                    | 19        | 5                                  | 14                         | 9           | 19          | 2               | 0                 | 25         | 23                    | 10      | 7                                | 40               | 74        | 43                                 |
| Nova Southeastern Univ            | 543        | 0                     | 0         | 1                                  | 35                         | 0           | 0           | 1               | 0                 | 149        | 0                     | 0       | 0                                | 1                | 298       | 58                                 |
| Univ of Central Florida           | 69         | 7                     | 0         | 1                                  | 6                          | 22          | 0           | 0               | 0                 | 4          | 0                     | 0       | 0                                | 0                | 26        | 3                                  |
| Univ of Florida                   | 457        | 11                    | 59        | 4                                  | 16                         | 97          | 59          | 25              | 57                | 28         | 32                    | 8       | 6                                | 11               | 24        | 20                                 |
| Univ of Miami                     | 144        | 3                     | 1         | 10                                 | 2                          | 14          | 30          | 5               | 0                 | 20         | 14                    | 1       | 5                                | 21               | 16        | 2                                  |
| Univ of Sarasota                  | 87         | 0                     | 0         | 0                                  | 3                          | 0           | 0           | 0               | 0                 | 0          | 1                     | 0       | 0                                | 0                | 76        | 7                                  |
| Univ of South Florida             | 153        | 0                     | 4         | 7                                  | 11                         | 16          | 13          | 9               | 0                 | 11         | 3                     | 0       | 11                               | 6                | 50        | 12                                 |
| GEORGIA                           | 992        | 17                    | 45        | 10                                 | 42                         | 178         | 133         | 30              | 42                | 88         | 54                    | 12      | 30                               | 63               | 193       | 55                                 |
| Clark Atlanta Univ                | 51         | 0                     | 0         | 0                                  | 0                          | 0           | 1           | 0               | 0                 | 3          | 7                     | 0       | 0                                | 8                | 30        | 2                                  |
| Emory University                  | 135        | 3                     | 16        | 0                                  | 5                          | 1           | 32          | 5               | 0                 | 1          | 14                    | 7       | 16                               | 31               | 3         | 1                                  |
| Georgia Inst of Technology        | 262        | 10                    | 15        | 8                                  | 28                         | 175         | 9           | 0               | 0                 | 10         | 0                     | 0       | 0                                | 0                | 0         | 7                                  |
| Georgia Southern Univ             | 8          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 8         | 0                                  |
| Georgia State Univ                | 137        | 2                     | 1         | 0                                  | 1                          | 0           | 5           | 9               | 0                 | 26         | 9                     | 2       | 4                                | 1                | 57        | 20                                 |
| Institute of Paper Sci & Tech     | 6          | 0                     | 0         | 0                                  | 0                          | 1           | 0           | 0               | 5                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Medical College of Georgia        | 22         | 0                     | 0         | 0                                  | 0                          | 0           | 19          | 3               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Mercer Univ-Southern Schl of Phar | 2          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 2               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Georgia                   | 369        | 2                     | 13        | 2                                  | 8                          | 1           | 67          | 11              | 37                | 48         | 24                    | 3       | 10                               | 23               | 95        | 25                                 |
| HAWAII                            | 159        | 11                    | 9         | 12                                 | 6                          | 7           | 31          | 5               | 11                | 7          | 29                    | 7       | 5                                | 13               | 5         | 1                                  |
| Univ of Hawaii at Manoa           | 159        | 11                    | 9         | 12                                 | 6                          | 7           | 31          | 5               | 11                | 7          | 29                    | 7       | 5                                | 13               | 5         | 1                                  |
| IDAHO                             | 90         | 0                     | 10        | 2                                  | 5                          | 9           | 14          | 0               | 10                | 0          | 1                     | 0       | 1                                | 2                | 33        | 3                                  |
| Idaho State Univ                  | 19         | 0                     | 0         | 0                                  | 2                          | 3           | 5           | 0               | 0                 | 0          | 1                     | 0       | 1                                | 2                | 5         | 0                                  |
| Univ of Idaho                     | 71         | 0                     | 10        | 2                                  | 3                          | 6           | 9           | 0               | 10                | 0          | 0                     | 0       | 0                                | 0                | 28        | 3                                  |
| ILLINOIS                          | 2,260      | 95                    | 117       | 24                                 | 134                        | 352         | 263         | 74              | 42                | 176        | 250                   | 57      | 77                               | 199              | 300       | 100                                |
| Depaul Univ                       | 16         | 0                     | 0         | 0                                  | 2                          | 0           | 0           | 0               | 0                 | 11         | 0                     | 0       | 0                                | 3                | 0         | 0                                  |
| Finch U of Hlth Sci-Chicago Med   | 18         | 0                     | 0         | 0                                  | 0                          | 0           | 8           | 1               | 0                 | 9          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Illinois Inst of Technology       | 75         | 2                     | 3         | 0                                  | 14                         | 32          | 6           | 0               | 0                 | 16         | 0                     | 0       | 0                                | 0                | 0         | 2                                  |
| Illinois State Univ-Normal        | 51         | 0                     | 0         | 0                                  | 2                          | 0           | 3           | 0               | 0                 | 1          | 1                     | 1       | 8                                | 4                | 31        | 0                                  |
| Inst for Clinical Social Work     | 8          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 1          | 0                     | 0       | 0                                | 0                | 0         | 7                                  |
| Loyola Univ of Chicago            | 128        | 0                     | 2         | 0                                  | 1                          | 0           | 23          | 8               | 0                 | 26         | 7                     | 1       | 10                               | 7                | 36        | 7                                  |
| Lutheran School of Theol-Chicago  | 2          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 2                | 0         | 0                                  |
| Northern Illinois Univ            | 116        | 0                     | 5         | 0                                  | 2                          | 0           | 2           | 0               | 0                 | 12         | 12                    | 0       | 7                                | 1                | 75        | 0                                  |
| Northwestern Univ                 | 371        | 14                    | 19        | 4                                  | 25                         | 94          | 44          | 4               | 0                 | 32         | 50                    | 6       | 6                                | 40               | 11        | 22                                 |
| Roosevelt Univ                    | 13         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 13        | 0                                  |
| Rush Univ                         | 26         | 1                     | 0         | 0                                  | 0                          | 0           | 3           | 21              | 0                 | 0          | 1                     | 0       | 0                                | 0                | 0         | 0                                  |
| Southern Ill Univ-Carbondale      | 138        | 2                     | 5         | 0                                  | 4                          | 6           | 10          | 7               | 2                 | 15         | 13                    | 4       | 11                               | 17               | 31        | 11                                 |
| Southern Ill Univ-Edwardsville    | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 4         | 0                                  |
| Univ of Chicago                   | 368        | 28                    | 17        | 8                                  | 25                         | 0           | 51          | 1               | 0                 | 10         | 95                    | 29      | 18                               | 66               | 7         | 13                                 |
| Univ of Illinois-Chicago          | 220        | 8                     | 20        | 3                                  | 15                         | 45          | 42          | 26              | 0                 | 6          | 16                    | 4       | 5                                | 4                | 16        | 10                                 |
| Univ of Illinois-Urbana/Champaign | 706        | 40                    | 46        | 9                                  | 44                         | 175         | 71          | 6               | 40                | 37         | 55                    | 12      | 12                               | 55               | 76        | 28                                 |
| INDIANA                           | 1,084      | 26                    | 96        | 11                                 | 53                         | 170         | 119         | 35              | 46                | 67         | 77                    | 21      | 49                               | 124              | 137       | 53                                 |
| Ball State Univ                   | 49         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 2               | 0                 | 12         | 0                     | 0       | 4                                | 11               | 20        | 0                                  |
| Indiana State Univ                | 27         | 0                     | 0         | 0                                  | 0                          | 0           | 3           | 0               | 0                 | 12         | 3                     | 0       | 0                                | 0                | 9         | 0                                  |
| Indiana Univ-Bloomington          | 380        | 9                     | 24        | 4                                  | 22                         | 0           | 44          | 7               | 0                 | 19         | 40                    | 11      | 16                               | 80               | 72        | 32                                 |
| Indiana Univ-Purdue-Indianapolis  | 15         | 0                     | 0         | 0                                  | 0                          | 0           | 1           | 14              | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |

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\*Includes 20 respondents for whom doctoral field is unknown.

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|----------------------------------------|------------|-----------------------|-----------|------------------------------------|----------------------------|-------------|-------------|-----------------|-------------------|------------|-----------------------|---------|----------------------------------|------------------|-----------|------------------------------------|
| <b>INDIANA (continued)</b>             |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Purdue Univ                            | 496        | 11                    | 66        | 7                                  | 24                         | 139         | 53          | 12              | 46                | 19         | 19                    | 4       | 22                               | 20               | 35        | 19                                 |
| Univ of Notre Dame                     | 117        | 6                     | 6         | 0                                  | 7                          | 31          | 18          | 0               | 0                 | 5          | 15                    | 6       | 7                                | 13               | 1         | 2                                  |
| <b>IOWA</b>                            |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Drake Univ                             | 6          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 6         | 0                                  |
| Iowa State Univ                        | 300        | 15                    | 30        | 2                                  | 17                         | 66          | 40          | 2               | 37                | 22         | 23                    | 5       | 0                                | 3                | 32        | 6                                  |
| Maharishi International Univ           | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 3           | 0               | 0                 | 1          | 0                     | 0       | 0                                | 1                | 0         | 0                                  |
| Univ of Iowa                           | 327        | 4                     | 21        | 5                                  | 18                         | 36          | 36          | 38              | 0                 | 15         | 25                    | 8       | 8                                | 34               | 61        | 18                                 |
| Univ of Northern Iowa                  | 11         | 0                     | 0         | 0                                  | 0                          | 2           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 9         | 0                                  |
| <b>KANSAS</b>                          |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Kansas State Univ                      | 161        | 4                     | 6         | 1                                  | 9                          | 23          | 27          | 1               | 30                | 12         | 11                    | 1       | 1                                | 0                | 34        | 1                                  |
| Univ of Kansas                         | 287        | 5                     | 25        | 4                                  | 0                          | 15          | 35          | 10              | 0                 | 31         | 22                    | 15      | 15                               | 35               | 56        | 19                                 |
| Wichita State Univ                     | 37         | 0                     | 4         | 0                                  | 5                          | 12          | 0           | 2               | 0                 | 5          | 0                     | 0       | 0                                | 0                | 9         | 0                                  |
| <b>KENTUCKY</b>                        |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Southern Bapt Theol Seminary           | 30         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 1       | 0                                | 18               | 1         | 10                                 |
| Spalding Univ                          | 10         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 1                     | 0       | 0                                | 0                | 9         | 0                                  |
| Univ of Kentucky                       | 227        | 7                     | 9         | 2                                  | 16                         | 21          | 49          | 6               | 14                | 18         | 11                    | 13      | 7                                | 18               | 23        | 13                                 |
| Univ of Louisville                     | 75         | 0                     | 9         | 0                                  | 1                          | 8           | 20          | 1               | 0                 | 11         | 2                     | 0       | 1                                | 5                | 16        | 1                                  |
| <b>LOUISIANA</b>                       |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Grambling State Univ                   | 10         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 10        | 0                                  |
| Louisiana St U and A&M Col-Baton Rouge | 258        | 8                     | 14        | 8                                  | 11                         | 33          | 39          | 6               | 20                | 22         | 16                    | 6       | 12                               | 21               | 33        | 9                                  |
| Louisiana St U Med Schl-New Orleans    | 23         | 0                     | 0         | 0                                  | 0                          | 0           | 18          | 5               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Louisiana St U Med Schl-Shreveport     | 2          | 0                     | 0         | 0                                  | 0                          | 0           | 2           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Louisiana Tech Univ                    | 9          | 0                     | 0         | 0                                  | 0                          | 3           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 4         | 2                                  |
| New Orleans Bapt Theol Seminary        | 25         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 1       | 0                                | 13               | 1         | 10                                 |
| Northeast Louisiana Univ               | 11         | 0                     | 1         | 0                                  | 0                          | 0           | 3           | 5               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 2         | 0                                  |
| Tulane Univ of Louisiana               | 126        | 2                     | 7         | 0                                  | 12                         | 9           | 28          | 19              | 0                 | 6          | 12                    | 8       | 8                                | 11               | 0         | 4                                  |
| Univ of New Orleans                    | 61         | 0                     | 6         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 8          | 11                    | 0       | 0                                | 0                | 32        | 4                                  |
| Univ of Southwestern Louisiana         | 30         | 0                     | 0         | 0                                  | 11                         | 4           | 6           | 0               | 0                 | 0          | 0                     | 0       | 5                                | 4                | 0         | 0                                  |
| <b>MAINE</b>                           |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Univ of Maine                          | 50         | 0                     | 2         | 4                                  | 0                          | 5           | 10          | 0               | 6                 | 7          | 0                     | 3       | 0                                | 1                | 11        | 1                                  |
| Univ of Maine                          | 50         | 0                     | 2         | 4                                  | 0                          | 5           | 10          | 0               | 6                 | 7          | 0                     | 3       | 0                                | 1                | 11        | 1                                  |
| <b>MARYLAND</b>                        |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Johns Hopkins Univ                     | 363        | 20                    | 13        | 9                                  | 9                          | 43          | 84          | 77              | 0                 | 14         | 50                    | 13      | 3                                | 18               | 9         | 1                                  |
| Loyola College in Maryland             | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 4          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Morgan State Univ                      | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 4         | 0                                  |
| Peabody Inst of Johns Hopkins          | 22         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 21               | 0         | 1                                  |
| Uniformed Serv U of Hlth Sci           | 10         | 0                     | 0         | 0                                  | 0                          | 0           | 6           | 0               | 0                 | 4          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Maryland-Baltimore County      | 55         | 0                     | 4         | 0                                  | 12                         | 19          | 4           | 0               | 0                 | 6          | 6                     | 0       | 0                                | 3                | 0         | 1                                  |
| Univ of Maryland-College Park          | 476        | 35                    | 18        | 8                                  | 36                         | 82          | 34          | 10              | 12                | 42         | 37                    | 8       | 10                               | 44               | 64        | 36                                 |
| University of Maryland-Eastern Shore   | 2          | 0                     | 0         | 0                                  | 0                          | 0           | 1           | 0               | 1                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Maryland-Baltimore Prof Schs   | 66         | 0                     | 3         | 0                                  | 0                          | 0           | 35          | 19              | 0                 | 1          | 0                     | 0       | 0                                | 0                | 0         | 8                                  |
| <b>MASSACHUSETTS</b>                   |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| American Internatl College             | 6          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 6         | 0                                  |
| Boston College                         | 100        | 5                     | 2         | 0                                  | 0                          | 0           | 13          | 8               | 0                 | 6          | 10                    | 4       | 2                                | 15               | 20        | 15                                 |
| Boston Univ                            | 278        | 15                    | 8         | 4                                  | 8                          | 14          | 59          | 12              | 0                 | 24         | 29                    | 1       | 1                                | 52               | 32        | 19                                 |
| Brandeis Univ                          | 90         | 3                     | 5         | 0                                  | 9                          | 1           | 21          | 2               | 0                 | 2          | 27                    | 6       | 7                                | 5                | 1         | 1                                  |
| Clark Univ                             | 31         | 1                     | 2         | 0                                  | 0                          | 1           | 2           | 0               | 0                 | 8          | 12                    | 0       | 0                                | 2                | 2         | 1                                  |
| Harvard Univ                           | 560        | 38                    | 33        | 7                                  | 23                         | 12          | 107         | 45              | 0                 | 14         | 87                    | 33      | 10                               | 85               | 42        | 24                                 |
| Mass Coll Pharm & Health Sci           | 2          | 0                     | 0         | 0                                  | 0                          | 0           | 2           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Mass Inst of Technology                | 492        | 40                    | 29        | 19                                 | 41                         | 229         | 52          | 0               | 2                 | 48         | 1                     | 0       | 2                                | 2                | 27        |                                    |
| New England Conserv of Music           | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 3                | 1         | 0                                  |
| Northeastern Univ                      | 87         | 6                     | 9         | 0                                  | 5                          | 23          | 8           | 2               | 0                 | 10         | 22                    | 0       | 0                                | 0                | 1         | 1                                  |
| Simmons College                        | 8          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 8                                  |
| Smith College                          | 11         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 1                | 0         | 10                                 |
| Springfield College                    | 7          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 7         | 0                                  |
| Tufts Univ                             | 81         | 3                     | 3         | 1                                  | 2                          | 7           | 33          | 3               | 0                 | 6          | 11                    | 1       | 7                                | 2                | 1         | 1                                  |
| Univ of Massachusetts-Amherst          | 298        | 13                    | 23        | 2                                  | 16                         | 54          | 24          | 9               | 9                 | 21         | 18                    | 5       | 10                               | 29               | 45        | 20                                 |
| Univ of Massachusetts-Boston           | 15         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 8          | 5                     | 0       | 0                                | 0                | 2         | 0                                  |
| Univ of Massachusetts-Lowell           | 51         | 2                     | 5         | 0                                  | 8                          | 13          | 6           | 2               | 0                 | 0          | 1                     | 0       | 0                                | 0                | 14        | 0                                  |
| Univ of Massachusetts-Worcester        | 26         | 0                     | 0         | 0                                  | 0                          | 0           | 26          | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Worcester Polytechnic Inst             | 27         | 2                     | 0         | 0                                  | 0                          | 23          | 2           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| <b>MICHIGAN</b>                        |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Andrews Univ                           | 19         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 3          | 0                     | 0       | 0                                | 3                | 12        | 1                                  |
| Central Michigan Univ                  | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 4          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Eastern Michigan Univ                  | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 5         | 0                                  |

NOTE: Field groupings may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates.

\*Includes 20 respondents for whom doctoral field is unknown.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Institutions granting research doctorates, by major field, 1998

| State/Institution                | 1998 Total | Physics and Astronomy | Chemistry | Earth, Atmos., and Marine Sciences | Math and Computer Sciences | Engineering | Biosciences | Health Sciences | Agricultural Sci. | Psychology | Other Social Sciences | History | Eng. and Amer. Language and Lit. | Other Humanities | Education | Professional/Other/Unknown Fields* |
|----------------------------------|------------|-----------------------|-----------|------------------------------------|----------------------------|-------------|-------------|-----------------|-------------------|------------|-----------------------|---------|----------------------------------|------------------|-----------|------------------------------------|
| MICHIGAN (continued)             |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Michigan State Univ              | 436        | 19                    | 27        | 0                                  | 21                         | 46          | 58          | 10              | 43                | 38         | 49                    | 6       | 8                                | 18               | 57        | 36                                 |
| Michigan Tech Univ               | 51         | 6                     | 3         | 1                                  | 0                          | 22          | 7           | 0               | 7                 | 0          | 0                     | 0       | 0                                | 4                | 0         | 1                                  |
| Oakland Univ                     | 23         | 1                     | 0         | 0                                  | 0                          | 12          | 4           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 6         | 0                                  |
| Univ of Detroit Mercy            | 6          | 0                     | 0         | 0                                  | 0                          | 1           | 0           | 0               | 0                 | 5          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Michigan                 | 687        | 27                    | 40        | 14                                 | 41                         | 175         | 57          | 45              | 6                 | 38         | 66                    | 15      | 18                               | 74               | 40        | 31                                 |
| Wayne State Univ                 | 220        | 5                     | 20        | 0                                  | 7                          | 19          | 44          | 11              | 0                 | 21         | 16                    | 5       | 3                                | 6                | 58        | 5                                  |
| Western Michigan Univ            | 58         | 2                     | 0         | 3                                  | 6                          | 0           | 1           | 0               | 0                 | 13         | 8                     | 1       | 1                                | 0                | 21        | 2                                  |
| MINNESOTA                        |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Luther Seminary                  | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 4                | 0         | 1                                  |
| Mayo Graduate School             | 20         | 0                     | 0         | 0                                  | 0                          | 1           | 19          | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Minnesota-Minneapolis    | 724        | 24                    | 39        | 5                                  | 38                         | 98          | 89          | 30              | 52                | 44         | 44                    | 23      | 8                                | 65               | 125       | 40                                 |
| Univ of St Thomas                | 20         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 20        | 0                                  |
| Walden Univ                      | 74         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 7               | 0                 | 11         | 0                     | 0       | 0                                | 4                | 23        | 27                                 |
| MISSISSIPPI                      |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Delta State Univ                 | 1          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 1         | 0                                  |
| Jackson State Univ               | 18         | 0                     | 0         | 3                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 1                     | 0       | 0                                | 0                | 12        | 2                                  |
| Mississippi State Univ           | 103        | 0                     | 4         | 0                                  | 1                          | 14          | 6           | 1               | 20                | 6          | 10                    | 3       | 0                                | 1                | 27        | 10                                 |
| Reformed Theological Seminary    | 3          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 1                | 0         | 2                                  |
| Univ of Mississippi              | 100        | 2                     | 10        | 2                                  | 4                          | 10          | 9           | 5               | 0                 | 5          | 0                     | 4       | 4                                | 2                | 24        | 19                                 |
| Univ of Mississippi-Med Ctr      | 13         | 0                     | 0         | 0                                  | 0                          | 0           | 13          | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Southern Mississippi     | 112        | 0                     | 11        | 0                                  | 4                          | 1           | 4           | 2               | 0                 | 17         | 0                     | 1       | 1                                | 2                | 60        | 9                                  |
| MISSOURI                         |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Concordia Seminary               | 1          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 1                                  |
| Midwest Baptist Theol Sem        | 17         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 4                | 0         | 13                                 |
| St. Louis Univ                   | 128        | 0                     | 0         | 2                                  | 0                          | 0           | 14          | 12              | 0                 | 21         | 2                     | 0       | 7                                | 9                | 49        | 12                                 |
| Univ of Missouri-Columbia        | 275        | 8                     | 5         | 5                                  | 7                          | 30          | 32          | 8               | 22                | 24         | 21                    | 2       | 7                                | 15               | 65        | 24                                 |
| Univ of Missouri-Kansas City     | 54         | 1                     | 4         | 0                                  | 0                          | 1           | 11          | 1               | 0                 | 4          | 0                     | 1       | 0                                | 10               | 21        | 0                                  |
| Univ of Missouri-Rolla           | 61         | 2                     | 11        | 0                                  | 5                          | 42          | 1           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Missouri-St Louis        | 34         | 0                     | 7         | 0                                  | 0                          | 0           | 3           | 0               | 0                 | 11         | 4                     | 0       | 0                                | 0                | 9         | 0                                  |
| Washington Univ                  | 210        | 10                    | 23        | 8                                  | 5                          | 36          | 56          | 2               | 1                 | 13         | 18                    | 3       | 2                                | 26               | 1         | 6                                  |
| MONTANA                          |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Montana State Univ               | 50         | 6                     | 5         | 0                                  | 4                          | 4           | 8           | 0               | 3                 | 0          | 0                     | 0       | 0                                | 0                | 20        | 0                                  |
| Univ of Montana                  | 47         | 0                     | 1         | 2                                  | 0                          | 0           | 16          | 0               | 9                 | 10         | 0                     | 0       | 0                                | 0                | 8         | 1                                  |
| NEBRASKA                         |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Creighton Univ                   | 2          | 0                     | 0         | 0                                  | 0                          | 0           | 2           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Nebraska-Lincoln         | 282        | 8                     | 9         | 4                                  | 14                         | 14          | 20          | 7               | 47                | 25         | 22                    | 3       | 13                               | 12               | 56        | 28                                 |
| Univ of Nebraska-Med Center      | 24         | 0                     | 1         | 0                                  | 0                          | 0           | 20          | 3               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Nebraska-Omaha           | 6          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 2                     | 0       | 0                                | 0                | 4         | 0                                  |
| NEVADA                           |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Univ of Nevada-Las Vegas         | 14         | 1                     | 0         | 0                                  | 0                          | 1           | 1           | 0               | 0                 | 2          | 0                     | 2       | 0                                | 5                | 2         | 2                                  |
| Univ of Nevada-Reno              | 72         | 2                     | 6         | 17                                 | 0                          | 8           | 12          | 1               | 0                 | 12         | 6                     | 1       | 3                                | 0                | 4         | 0                                  |
| NEW HAMPSHIRE                    |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Dartmouth College                | 45         | 5                     | 10        | 1                                  | 4                          | 6           | 17          | 0               | 0                 | 2          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of New Hampshire            | 74         | 5                     | 6         | 4                                  | 4                          | 4           | 14          | 0               | 7                 | 4          | 4                     | 5       | 4                                | 3                | 10        | 0                                  |
| NEW JERSEY                       |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Drew Univ                        | 30         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 3                     | 4       | 19                               | 0                | 4         | 4                                  |
| Farleigh Dickinson Univ          | 7          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 7          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| New Jersey Inst of Technology    | 31         | 0                     | 1         | 2                                  | 4                          | 24          | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Princeton Theol Seminary         | 13         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 2                     | 0       | 7                                | 0                | 4         | 4                                  |
| Princeton Univ                   | 264        | 28                    | 12        | 5                                  | 19                         | 47          | 17          | 0               | 4                 | 33         | 23                    | 9       | 62                               | 1                | 4         | 4                                  |
| Rutgers St Univ-New Brunswick    | 364        | 14                    | 15        | 14                                 | 26                         | 55          | 63          | 6               | 17                | 20         | 33                    | 8       | 13                               | 36               | 35        | 9                                  |
| Rutgers St Univ-Newark           | 32         | 0                     | 2         | 0                                  | 2                          | 0           | 10          | 0               | 0                 | 1          | 4                     | 0       | 0                                | 0                | 0         | 13                                 |
| Seton Hall Univ                  | 37         | 0                     | 7         | 0                                  | 0                          | 0           | 1           | 0               | 0                 | 16         | 0                     | 0       | 0                                | 0                | 11        | 2                                  |
| Stevens Inst of Technology       | 31         | 2                     | 1         | 0                                  | 5                          | 13          | 0           | 0               | 0                 | 9          | 0                     | 0       | 0                                | 0                | 0         | 1                                  |
| Univ of Med & Dent of NJ         | 21         | 0                     | 0         | 0                                  | 0                          | 0           | 21          | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| NEW MEXICO                       |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| New Mexico Inst of Mining & Tech | 13         | 1                     | 0         | 6                                  | 0                          | 6           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| New Mexico State Univ            | 94         | 9                     | 9         | 0                                  | 8                          | 13          | 9           | 0               | 15                | 5          | 0                     | 0       | 0                                | 4                | 15        | 7                                  |
| Univ of New Mexico               | 204        | 14                    | 6         | 1                                  | 6                          | 38          | 20          | 3               | 0                 | 20         | 14                    | 5       | 5                                | 15               | 49        | 8                                  |
| NEW YORK                         |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Adelphi Univ                     | 46         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 16              | 0                 | 23         | 0                     | 0       | 0                                | 0                | 0         | 7                                  |
| Albany Medical College           | 13         | 0                     | 0         | 0                                  | 0                          | 0           | 13          | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |

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|----------------------------------|------------|-----------------------|-----------|------------------------------------|----------------------------|-------------|-------------|-----------------|-------------------|------------|--------------|---------|----------------------------------|------------------|-----------|------------------------------------|
| NEW YORK (continued)             |            |                       |           |                                    |                            |             |             |                 |                   |            |              |         |                                  |                  |           |                                    |
| Alfred Univ                      | 10         | 0                     | 0         | 0                                  | 0                          | 10          | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| City U of NY-Grad Sch/U Ctr      | 333        | 15                    | 14        | 6                                  | 16                         | 18          | 44          | 7               | 0                 | 51         | 48           | 6       | 21                               | 60               | 10        | 17                                 |
| Clarkson Univ                    | 22         | 1                     | 9         | 0                                  | 1                          | 10          | 1           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Columbia Univ                    | 462        | 20                    | 18        | 10                                 | 18                         | 41          | 70          | 13              | 0                 | 44         | 63           | 38      | 27                               | 59               | 19        | 22                                 |
| Columbia Univ-Teachers College   | 168        | 0                     | 0         | 0                                  | 0                          | 0           | 1           | 0               | 0                 | 1          | 0            | 0       | 0                                | 4                | 162       | 0                                  |
| Cornell Univ                     | 476        | 37                    | 27        | 7                                  | 30                         | 84          | 79          | 2               | 47                | 17         | 52           | 15      | 7                                | 47               | 9         | 16                                 |
| Cornell Univ Medical Campus      | 31         | 0                     | 0         | 0                                  | 0                          | 0           | 31          | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Fordham Univ                     | 132        | 0                     | 0         | 0                                  | 0                          | 0           | 7           | 0               | 0                 | 33         | 9            | 3       | 3                                | 13               | 46        | 18                                 |
| Hebrew Union College             | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 5                | 0         | 0                                  |
| Hofstra Univ                     | 33         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 31         | 0            | 0       | 0                                | 1                | 1         | 0                                  |
| Jewish Theol Sem of America      | 12         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0            | 1       | 0                                | 8                | 1         | 2                                  |
| The Juilliard School             | 16         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 16               | 0         | 0                                  |
| Long Island Univ-Brooklyn Campus | 10         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 10         | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Manhattan School of Music        | 9          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 9                | 0         | 0                                  |
| New School for Social Research   | 61         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 24         | 32           | 0       | 0                                | 5                | 0         | 0                                  |
| New York Medical College         | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 5           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| New York Univ                    | 430        | 6                     | 6         | 2                                  | 23                         | 2           | 52          | 29              | 1                 | 33         | 31           | 11      | 44                               | 92               | 58        | 40                                 |
| Pace Univ                        | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 5                                  |
| Polytechnic Univ                 | 39         | 2                     | 4         | 0                                  | 5                          | 28          | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Rensselaer Polytechnic Inst      | 128        | 7                     | 5         | 2                                  | 23                         | 76          | 2           | 0               | 0                 | 0          | 1            | 0       | 0                                | 4                | 0         | 8                                  |
| Rockefeller Univ                 | 24         | 1                     | 0         | 0                                  | 0                          | 0           | 22          | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 1                                  |
| St Johns Univ-Queens             | 48         | 0                     | 0         | 0                                  | 0                          | 0           | 4           | 2               | 0                 | 19         | 1            | 3       | 7                                | 1                | 11        | 0                                  |
| State Univ of NY-Albany          | 174        | 6                     | 7         | 3                                  | 12                         | 0           | 15          | 2               | 1                 | 28         | 16           | 2       | 11                               | 16               | 40        | 15                                 |
| State Univ of NY-Binghamton      | 81         | 0                     | 6         | 0                                  | 15                         | 6           | 3           | 0               | 0                 | 7          | 29           | 1       | 4                                | 7                | 2         | 1                                  |
| State Univ of NY-Buffalo         | 294        | 5                     | 18        | 6                                  | 10                         | 40          | 45          | 13              | 0                 | 29         | 15           | 5       | 17                               | 28               | 52        | 11                                 |
| State Univ of NY-Stony Brook     | 264        | 21                    | 16        | 9                                  | 32                         | 27          | 56          | 1               | 1                 | 14         | 18           | 7       | 14                               | 46               | 0         | 2                                  |
| SUNY Coll-Environ Sci & Forestry | 15         | 0                     | 1         | 0                                  | 0                          | 1           | 4           | 0               | 8                 | 0          | 1            | 0       | 0                                | 0                | 0         | 0                                  |
| SUNY College of Optometry        | 1          | 0                     | 0         | 0                                  | 0                          | 0           | 1           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| SUNY-Hlth Sci Ctr-Brooklyn       | 13         | 0                     | 0         | 0                                  | 0                          | 0           | 12          | 1               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| SUNY-Hlth Sci Ctr-Syracuse       | 6          | 0                     | 0         | 0                                  | 0                          | 0           | 6           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Syracuse Univ                    | 163        | 8                     | 3         | 0                                  | 11                         | 14          | 8           | 2               | 0                 | 20         | 39           | 1       | 2                                | 7                | 29        | 19                                 |
| Union College                    | 3          | 0                     | 0         | 0                                  | 0                          | 1           | 0           | 1               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 1                                  |
| Union Theol Seminary             | 7          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 1          | 0            | 0       | 0                                | 1                | 0         | 5                                  |
| Univ of Rochester                | 219        | 30                    | 14        | 2                                  | 14                         | 16          | 51          | 4               | 0                 | 10         | 15           | 5       | 7                                | 30               | 14        | 7                                  |
| Yeshiva Univ                     | 26         | 0                     | 0         | 0                                  | 0                          | 0           | 25          | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 1                                  |
| NORTH CAROLINA                   |            |                       |           |                                    |                            |             |             |                 |                   |            |              |         |                                  |                  |           |                                    |
| Duke Univ                        | 1,084      | 33                    | 69        | 23                                 | 69                         | 143         | 204         | 59              | 35                | 66         | 94           | 18      | 39                               | 63               | 131       | 38                                 |
| East Carolina Univ Sch of Med    | 243        | 13                    | 11        | 8                                  | 8                          | 31          | 65          | 0               | 1                 | 13         | 32           | 7       | 19                               | 29               | 0         | 6                                  |
| North Carolina A & T             | 15         | 0                     | 0         | 0                                  | 0                          | 0           | 12          | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 3         | 0                                  |
| North Carolina St U-Raleigh      | 3          | 0                     | 0         | 0                                  | 0                          | 3           | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| U of N Carolina-Chapel Hill      | 322        | 10                    | 8         | 7                                  | 30                         | 94          | 39          | 2               | 33                | 11         | 22           | 0       | 0                                | 0                | 65        | 1                                  |
| U of N Carolina-Greensboro       | 391        | 8                     | 45        | 8                                  | 31                         | 15          | 62          | 53              | 1                 | 23         | 39           | 11      | 14                               | 25               | 25        | 31                                 |
| Wake Forest Univ                 | 78         | 0                     | 0         | 0                                  | 0                          | 0           | 1           | 4               | 0                 | 19         | 1            | 0       | 6                                | 9                | 38        | 0                                  |
| Wake Forest Univ                 | 32         | 2                     | 5         | 0                                  | 0                          | 0           | 25          | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| NORTH DAKOTA                     |            |                       |           |                                    |                            |             |             |                 |                   |            |              |         |                                  |                  |           |                                    |
| North Dakota State Univ          | 85         | 1                     | 6         | 1                                  | 4                          | 4           | 21          | 2               | 9                 | 12         | 0            | 2       | 1                                | 1                | 21        | 0                                  |
| Univ of North Dakota             | 31         | 0                     | 4         | 0                                  | 4                          | 1           | 12          | 2               | 8                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of North Dakota             | 54         | 1                     | 2         | 1                                  | 0                          | 3           | 9           | 0               | 1                 | 12         | 0            | 2       | 1                                | 1                | 21        | 0                                  |
| OHIO                             |            |                       |           |                                    |                            |             |             |                 |                   |            |              |         |                                  |                  |           |                                    |
| Air Force Inst of Technology     | 1,863      | 66                    | 122       | 15                                 | 69                         | 305         | 250         | 84              | 25                | 178        | 75           | 51      | 39                               | 133              | 341       | 110                                |
| Bowling Green State Univ         | 29         | 4                     | 0         | 0                                  | 2                          | 23          | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Case Western Reserve Univ        | 93         | 0                     | 9         | 0                                  | 8                          | 0           | 7           | 1               | 0                 | 12         | 5            | 3       | 8                                | 17               | 13        | 10                                 |
| Cleveland State Univ             | 177        | 6                     | 14        | 0                                  | 7                          | 46          | 33          | 17              | 0                 | 12         | 7            | 6       | 7                                | 4                | 0         | 18                                 |
| Hebrew Union College             | 33         | 0                     | 6         | 0                                  | 0                          | 6           | 3           | 0               | 0                 | 0          | 1            | 0       | 0                                | 0                | 11        | 6                                  |
| Kent State Univ                  | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0            | 2       | 0                                | 3                | 0         | 0                                  |
| Medical College of Ohio-Toledo   | 156        | 7                     | 4         | 2                                  | 9                          | 0           | 11          | 2               | 0                 | 38         | 6            | 3       | 6                                | 2                | 53        | 13                                 |
| Miami Univ                       | 23         | 0                     | 0         | 0                                  | 0                          | 0           | 22          | 1               | 0                 | 0          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Ohio State Univ                  | 51         | 0                     | 3         | 0                                  | 0                          | 0           | 9           | 0               | 0                 | 16         | 1            | 4       | 2                                | 1                | 15        | 0                                  |
| Ohio State Univ                  | 664        | 32                    | 34        | 10                                 | 32                         | 89          | 99          | 34              | 25                | 38         | 42           | 20      | 9                                | 58               | 108       | 34                                 |
| Ohio Univ                        | 133        | 5                     | 4         | 0                                  | 3                          | 11          | 12          | 1               | 0                 | 16         | 1            | 5       | 2                                | 8                | 50        | 15                                 |
| Univ of Akron                    | 127        | 2                     | 31        | 0                                  | 0                          | 42          | 1           | 0               | 0                 | 20         | 4            | 2       | 0                                | 0                | 23        | 2                                  |
| Univ of Cincinnati               | 267        | 7                     | 13        | 3                                  | 2                          | 61          | 42          | 19              | 0                 | 19         | 8            | 1       | 3                                | 37               | 41        | 11                                 |
| Univ of Dayton                   | 27         | 1                     | 0         | 0                                  | 0                          | 15          | 1           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 10        | 0                                  |
| Univ of Toledo                   | 63         | 2                     | 4         | 0                                  | 2                          | 11          | 2           | 9               | 0                 | 6          | 0            | 5       | 2                                | 3                | 16        | 1                                  |
| Wright State Univ                | 14         | 0                     | 0         | 0                                  | 4                          | 1           | 8           | 0               | 0                 | 1          | 0            | 0       | 0                                | 0                | 0         | 0                                  |
| Youngstown State                 | 1          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0            | 0       | 0                                | 0                | 1         | 0                                  |
| OKLAHOMA                         |            |                       |           |                                    |                            |             |             |                 |                   |            |              |         |                                  |                  |           |                                    |
| Oklahoma State Univ              | 405        | 4                     | 12        | 20                                 | 10                         | 57          | 41          | 6               | 21                | 31         | 19           | 2       | 10                               | 41               | 97        | 34                                 |
| Univ of Oklahoma                 | 197        | 2                     | 2         | 4                                  | 5                          | 21          | 16          | 0               | 21                | 12         | 7            | 1       | 4                                | 30               | 61        | 11                                 |
| Univ of Tulsa                    | 187        | 2                     | 10        | 12                                 | 3                          | 27          | 23          | 6               | 0                 | 17         | 12           | 1       | 4                                | 11               | 36        | 23                                 |
| Univ of Tulsa                    | 21         | 0                     | 0         | 4                                  | 2                          | 9           | 2           | 0               | 0                 | 2          | 0            | 0       | 2                                | 0                | 0         | 0                                  |
| OREGON                           |            |                       |           |                                    |                            |             |             |                 |                   |            |              |         |                                  |                  |           |                                    |
|                                  | 427        | 17                    | 19        | 18                                 | 17                         | 38          | 88          | 24              | 37                | 18         | 30           | 5       | 15                               | 24               | 63        | 14                                 |

NOTE: Field groupings may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates.

\*Includes 20 respondents for whom doctoral field is unknown.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates



APPENDIX TABLE A-7. Institutions granting research doctorates, by major field, 1998

| State/Institution                     | 1998 Total | Physics and Astronomy | Chemistry | Earth, Atmos., and Marine Sciences | Math and Computer Sciences | Engineering | Biosciences | Health Sciences | Agricultural Sci. | Psychology | Other Social Sciences | History | Eng. and Amer. Language and Lit. | Other Humanities | Education | Professional/Other/Unknown Fields* |
|---------------------------------------|------------|-----------------------|-----------|------------------------------------|----------------------------|-------------|-------------|-----------------|-------------------|------------|-----------------------|---------|----------------------------------|------------------|-----------|------------------------------------|
| OREGON (continued)                    |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Oregon Grad Inst of Sci & Tech        | 13         | 2                     | 0         | 0                                  | 2                          | 6           | 3           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Oregon Health Sciences Univ           | 29         | 0                     | 0         | 0                                  | 0                          | 0           | 24          | 3               | 0                 | 1          | 0                     | 0       | 0                                | 1                | 0         | 0                                  |
| Oregon State Univ                     | 187        | 3                     | 12        | 11                                 | 8                          | 23          | 42          | 12              | 37                | 2          | 7                     | 0       | 0                                | 0                | 29        | 1                                  |
| Portland State Univ                   | 38         | 2                     | 2         | 2                                  | 2                          | 9           | 1           | 0               | 0                 | 2          | 4                     | 0       | 0                                | 0                | 10        | 4                                  |
| Univ of Oregon                        | 160        | 10                    | 5         | 5                                  | 5                          | 0           | 18          | 9               | 0                 | 13         | 19                    | 5       | 15                               | 23               | 24        | 9                                  |
| PENNSYLVANIA                          |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Allegheny Univ. of Health Sciences    | 24         | 1                     | 0         | 0                                  | 0                          | 0           | 2           | 0               | 0                 | 2          | 1                     | 0       | 0                                | 12               | 0         | 6                                  |
| Bryn Mawr College                     | 204        | 8                     | 4         | 1                                  | 41                         | 99          | 5           | 0               | 0                 | 3          | 14                    | 4       | 0                                | 6                | 0         | 19                                 |
| Carnegie Mellon Univ                  | 52         | 3                     | 2         | 0                                  | 3                          | 33          | 2           | 0               | 0                 | 4          | 0                     | 0       | 0                                | 0                | 1         | 4                                  |
| Drexel Univ                           | 14         | 0                     | 4         | 0                                  | 0                          | 0           | 1           | 0               | 0                 | 2          | 0                     | 0       | 1                                | 3                | 0         | 3                                  |
| Duquesne Univ                         | 46         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 1          | 2                     | 0       | 17                               | 13               | 12        | 1                                  |
| Indiana Univ of Pennsylvania          | 96         | 6                     | 2         | 2                                  | 6                          | 35          | 5           | 0               | 0                 | 7          | 2                     | 2       | 9                                | 1                | 17        | 2                                  |
| Lehigh Univ                           | 30         | 0                     | 0         | 0                                  | 0                          | 0           | 12          | 2               | 0                 | 16         | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Pennsylvania State Univ               | 597        | 24                    | 29        | 11                                 | 10                         | 144         | 59          | 18              | 26                | 42         | 31                    | 5       | 7                                | 27               | 128       | 36                                 |
| Philadelphia Coll. of Pharmacy & Sci. | 10         | 0                     | 4         | 0                                  | 0                          | 0           | 4           | 2               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Temple Univ                           | 292        | 2                     | 9         | 0                                  | 12                         | 2           | 20          | 9               | 0                 | 47         | 25                    | 13      | 3                                | 36               | 90        | 24                                 |
| Thomas Jefferson Univ                 | 19         | 0                     | 0         | 0                                  | 0                          | 0           | 19          | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Pennsylvania                  | 436        | 15                    | 20        | 1                                  | 18                         | 46          | 78          | 12              | 0                 | 16         | 71                    | 16      | 10                               | 65               | 33        | 35                                 |
| Univ of Pittsburgh                    | 373        | 3                     | 22        | 2                                  | 21                         | 45          | 45          | 29              | 1                 | 25         | 42                    | 5       | 4                                | 38               | 69        | 22                                 |
| Villanova Univ                        | 5          | 0                     | 4         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 1         | 0                                  |
| Westminster Theol Seminary            | 15         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 1       | 0                                | 5                | 0         | 9                                  |
| Widener Univ                          | 21         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 3               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 18        | 0                                  |
| PUERTO RICO                           |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Caribbean Ctr for Adv Studies         | 37         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 36         | 0                     | 0       | 0                                | 1                | 0         | 0                                  |
| Inter Amer U PR-Metro Campus          | 11         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 11        | 0                                  |
| Univ of Puerto Rico - Rio Piedras     | 51         | 0                     | 3         | 0                                  | 0                          | 0           | 5           | 0               | 0                 | 20         | 0                     | 4       | 0                                | 0                | 19        | 0                                  |
| Univ of Puerto Rico-Mayaguez          | 4          | 0                     | 0         | 2                                  | 0                          | 1           | 1           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| RHODE ISLAND                          |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Brown Univ                            | 174        | 20                    | 12        | 8                                  | 22                         | 12          | 15          | 0               | 0                 | 7          | 24                    | 9       | 6                                | 39               | 0         | 0                                  |
| Salve Regina Univ                     | 3          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 3                | 0         | 0                                  |
| Univ of Rhode Island                  | 72         | 3                     | 8         | 14                                 | 2                          | 5           | 5           | 4               | 3                 | 15         | 1                     | 0       | 5                                | 2                | 0         | 5                                  |
| SOUTH CAROLINA                        |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Clemson University                    | 369        | 4                     | 24        | 10                                 | 16                         | 37          | 68          | 25              | 8                 | 17         | 25                    | 5       | 16                               | 20               | 69        | 25                                 |
| Medical Univ of South Carolina        | 101        | 2                     | 10        | 0                                  | 4                          | 29          | 30          | 0               | 8                 | 0          | 5                     | 0       | 0                                | 0                | 9         | 4                                  |
| South Carolina State Univ             | 24         | 0                     | 3         | 0                                  | 0                          | 0           | 20          | 1               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of South Carolina                | 1          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 1         | 0                                  |
| Univ of South Carolina                | 243        | 2                     | 11        | 10                                 | 12                         | 8           | 18          | 24              | 0                 | 17         | 20                    | 5       | 16                               | 20               | 59        | 21                                 |
| SOUTH DAKOTA                          |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| S Dakota Sch of Mines & Tech          | 70         | 0                     | 2         | 0                                  | 0                          | 2           | 6           | 0               | 2                 | 8          | 4                     | 0       | 0                                | 0                | 46        | 0                                  |
| South Dakota State Univ               | 2          | 0                     | 0         | 0                                  | 0                          | 2           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of South Dakota                  | 10         | 0                     | 2         | 0                                  | 0                          | 0           | 2           | 0               | 2                 | 0          | 4                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of South Dakota                  | 58         | 0                     | 0         | 0                                  | 0                          | 0           | 4           | 0               | 0                 | 8          | 0                     | 0       | 0                                | 0                | 46        | 0                                  |
| TENNESSEE                             |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| East Tennessee State Univ             | 643        | 13                    | 17        | 3                                  | 24                         | 63          | 109         | 22              | 4                 | 48         | 52                    | 13      | 18                               | 50               | 156       | 51                                 |
| Meharry Medical College               | 21         | 0                     | 0         | 0                                  | 0                          | 0           | 5           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 16        | 0                                  |
| Mid-America Baptist Theol Sem         | 15         | 0                     | 0         | 0                                  | 0                          | 0           | 14          | 1               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Middle Tennessee State Univ           | 8          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 4                | 0         | 4                                  |
| Tennessee State Univ                  | 10         | 0                     | 1         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 2                     | 2       | 1                                | 2                | 2         | 0                                  |
| Tennessee Technological Univ          | 35         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 6          | 1                     | 0       | 0                                | 0                | 26        | 2                                  |
| Univ of Memphis                       | 3          | 0                     | 0         | 0                                  | 0                          | 3           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Tennessee-Knoxville           | 87         | 0                     | 2         | 0                                  | 2                          | 7           | 5           | 1               | 0                 | 18         | 4                     | 5       | 0                                | 2                | 26        | 15                                 |
| Univ of Tennessee-Memphis             | 237        | 8                     | 6         | 3                                  | 8                          | 34          | 32          | 12              | 4                 | 14         | 26                    | 2       | 10                               | 8                | 45        | 25                                 |
| Vanderbilt Univ                       | 12         | 0                     | 0         | 0                                  | 0                          | 0           | 9           | 3               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Vanderbilt Univ                       | 215        | 5                     | 8         | 0                                  | 14                         | 19          | 44          | 5               | 0                 | 10         | 19                    | 4       | 7                                | 34               | 41        | 5                                  |
| TEXAS                                 |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Baylor College of Medicine            | 2,736      | 89                    | 122       | 63                                 | 120                        | 407         | 388         | 108             | 66                | 213        | 179                   | 54      | 61                               | 211              | 473       | 182                                |
| Baylor Univ                           | 44         | 0                     | 0         | 0                                  | 0                          | 0           | 43          | 1               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Dallas Theological Seminary           | 33         | 0                     | 0         | 0                                  | 1                          | 0           | 8           | 0               | 0                 | 1          | 3                     | 0       | 0                                | 7                | 13        | 0                                  |
| Lamar Univ                            | 6          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 1                | 0         | 5                                  |
| Rice Univ                             | 2          | 0                     | 0         | 0                                  | 0                          | 1           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 1         | 0                                  |
| Sam Houston State Univ                | 115        | 5                     | 4         | 9                                  | 13                         | 33          | 7           | 0               | 0                 | 2          | 19                    | 5       | 7                                | 11               | 0         | 0                                  |
| Southern Methodist Univ               | 7          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 7                     | 0       | 0                                | 0                | 0         | 0                                  |
| Southwestern Baptist Theol Sem        | 46         | 2                     | 0         | 2                                  | 7                          | 16          | 2           | 0               | 0                 | 4          | 8                     | 0       | 0                                | 5                | 0         | 0                                  |
| Stephen F Austin St Univ              | 36         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 3          | 0                     | 0       | 0                                | 15               | 1         | 17                                 |
| Texas A&M Univ-College Station        | 1          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 1                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Texas A&M Univ-Commerce               | 528        | 12                    | 39        | 17                                 | 31                         | 115         | 74          | 8               | 55                | 29         | 47                    | 8       | 9                                | 2                | 58        | 24                                 |
| Texas A&M Univ-Kingsville             | 49         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 5          | 0                     | 0       | 0                                | 0                | 44        | 0                                  |
| Texas Christian Univ                  | 28         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 2                 | 0          | 0                     | 0       | 0                                | 0                | 26        | 0                                  |
| Texas Southern Univ                   | 24         | 3                     | 4         | 0                                  | 0                          | 0           | 1           | 0               | 0                 | 1          | 0                     | 8       | 4                                | 3                | 0         | 0                                  |
| Texas Southern Univ                   | 21         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 21        | 0                                  |

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\*Includes 20 respondents for whom doctoral field is unknown.

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| State/Institution                     | 1998 Total | Physics and Astronomy | Chemistry | Earth, Atmos., and Marine Sciences | Math and Computer Sciences | Engineering | Biosciences | Health Sciences | Agricultural Sci. | Psychology | Other Social Sciences | History | Eng. and Amer. Language and Lit. | Other Humanities | Education | Professional/Other/Unknown Fields* |
|---------------------------------------|------------|-----------------------|-----------|------------------------------------|----------------------------|-------------|-------------|-----------------|-------------------|------------|-----------------------|---------|----------------------------------|------------------|-----------|------------------------------------|
| TEXAS (continued)                     |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Texas Tech Univ                       | 168        | 5                     | 7         | 1                                  | 7                          | 25          | 16          | 0               | 8                 | 32         | 5                     | 4       | 2                                | 10               | 28        | 18                                 |
| Texas Woman's Univ                    | 88         | 0                     | 0         | 0                                  | 0                          | 0           | 4           | 38              | 0                 | 17         | 2                     | 0       | 0                                | 0                | 16        | 11                                 |
| Univ of Dallas                        | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 1          | 1                     | 0       | 2                                | 0                | 0         | 0                                  |
| Univ of Houston                       | 183        | 8                     | 11        | 1                                  | 7                          | 2           | 13          | 2               | 0                 | 27         | 15                    | 4       | 11                               | 6                | 65        | 11                                 |
| Univ of North Texas                   | 160        | 3                     | 12        | 2                                  | 13                         | 1           | 7           | 0               | 0                 | 30         | 4                     | 2       | 5                                | 16               | 50        | 15                                 |
| Univ of North Texas-Hlth Sci Ctr      | 10         | 0                     | 0         | 0                                  | 0                          | 0           | 9           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 1         | 0                                  |
| Univ of St. Thomas                    | 3          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 3                | 0         | 0                                  |
| Univ of Texas-Arlington               | 97         | 2                     | 2         | 0                                  | 4                          | 35          | 4           | 0               | 0                 | 3          | 6                     | 2       | 1                                | 16               | 0         | 22                                 |
| Univ of Texas-Austin                  | 834        | 39                    | 38        | 20                                 | 32                         | 160         | 58          | 38              | 0                 | 40         | 58                    | 21      | 20                               | 110              | 145       | 55                                 |
| Univ of Texas-Dallas                  | 50         | 10                    | 4         | 6                                  | 4                          | 6           | 8           | 1               | 0                 | 2          | 3                     | 0       | 0                                | 2                | 0         | 4                                  |
| Univ of Texas-El Paso                 | 14         | 0                     | 0         | 4                                  | 0                          | 8           | 0           | 0               | 0                 | 2          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| U Tex-Hlth Sci Ctr-Houston            | 66         | 0                     | 0         | 0                                  | 1                          | 0           | 46          | 14              | 0                 | 0          | 1                     | 0       | 0                                | 0                | 4         | 0                                  |
| U Tex-Hlth Sci Ctr-San Antonio        | 24         | 0                     | 0         | 0                                  | 0                          | 0           | 20          | 4               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| U Tex-Med Branch-Galveston            | 30         | 0                     | 0         | 0                                  | 0                          | 0           | 24          | 2               | 0                 | 0          | 0                     | 0       | 0                                | 4                | 0         | 0                                  |
| U Tex-Southwestern Med Ctr            | 65         | 0                     | 1         | 1                                  | 0                          | 5           | 44          | 0               | 0                 | 14         | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| UTAH                                  |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Brigham Young Univ                    | 63         | 1                     | 5         | 0                                  | 5                          | 11          | 4           | 0               | 1                 | 19         | 3                     | 0       | 0                                | 0                | 14        | 0                                  |
| Univ of Utah                          | 200        | 5                     | 21        | 5                                  | 13                         | 37          | 32          | 13              | 0                 | 9          | 12                    | 3       | 2                                | 12               | 19        | 17                                 |
| Utah State Univ                       | 90         | 4                     | 2         | 1                                  | 2                          | 18          | 15          | 1               | 8                 | 12         | 16                    | 0       | 0                                | 0                | 9         | 2                                  |
| VERMONT                               |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Middlebury College                    | 3          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 3                | 0         | 0                                  |
| Univ of Vermont                       | 59         | 0                     | 2         | 0                                  | 2                          | 9           | 19          | 0               | 1                 | 15         | 0                     | 0       | 0                                | 0                | 11        | 0                                  |
| VIRGINIA                              |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| College of William & Mary             | 43         | 8                     | 3         | 5                                  | 3                          | 0           | 1           | 0               | 0                 | 0          | 0                     | 3       | 0                                | 2                | 18        | 0                                  |
| George Mason Univ                     | 115        | 7                     | 1         | 1                                  | 28                         | 8           | 2           | 9               | 2                 | 22         | 12                    | 1       | 0                                | 1                | 20        | 1                                  |
| Hampton Univ                          | 4          | 4                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Old Dominion Univ                     | 74         | 2                     | 0         | 4                                  | 4                          | 14          | 19          | 4               | 0                 | 15         | 2                     | 0       | 0                                | 0                | 8         | 2                                  |
| Presbyterian Schl of Christ Educ      | 3          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 3         | 0                                  |
| Regent Univ                           | 6          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 6                                  |
| Union Theol Seminary                  | 5          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 2                | 0         | 3                                  |
| Univ of Virginia                      | 303        | 12                    | 14        | 9                                  | 12                         | 41          | 42          | 4               | 0                 | 25         | 24                    | 17      | 12                               | 29               | 55        | 7                                  |
| Virginia Commonwealth Univ & Med Coll | 86         | 0                     | 3         | 0                                  | 0                          | 1           | 45          | 14              | 0                 | 4          | 0                     | 0       | 0                                | 0                | 12        | 7                                  |
| Virginia Polytech Inst & St Univ      | 359        | 3                     | 14        | 3                                  | 17                         | 93          | 22          | 3               | 26                | 16         | 16                    | 2       | 0                                | 0                | 122       | 22                                 |
| WASHINGTON                            |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Gonzaga Univ                          | 13         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 13        | 0                                  |
| Seattle Pacific Univ                  | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 4         | 0                                  |
| Seattle Univ                          | 30         | 0                     | 0         | 0                                  | 0                          | 0           | 0           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 30        | 0                                  |
| Univ of Washington                    | 478        | 23                    | 24        | 29                                 | 27                         | 65          | 68          | 27              | 18                | 29         | 33                    | 11      | 11                               | 55               | 29        | 29                                 |
| Washington State Univ                 | 169        | 6                     | 7         | 1                                  | 5                          | 21          | 36          | 5               | 14                | 17         | 16                    | 3       | 2                                | 5                | 24        | 7                                  |
| WEST VIRGINIA                         |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Marshall Univ                         | 4          | 0                     | 0         | 0                                  | 0                          | 0           | 4           | 0               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| West Virginia Univ                    | 147        | 3                     | 3         | 2                                  | 7                          | 25          | 24          | 9               | 10                | 17         | 5                     | 2       | 1                                | 2                | 37        | 0                                  |
| WISCONSIN                             |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Marquette Univ                        | 58         | 0                     | 2         | 0                                  | 0                          | 17          | 2           | 0               | 0                 | 3          | 0                     | 5       | 2                                | 12               | 15        | 0                                  |
| Medical College of Wisconsin          | 17         | 0                     | 0         | 1                                  | 0                          | 0           | 14          | 2               | 0                 | 0          | 0                     | 0       | 0                                | 0                | 0         | 0                                  |
| Univ of Wisconsin-Madison             | 760        | 34                    | 44        | 15                                 | 46                         | 109         | 123         | 24              | 38                | 37         | 86                    | 25      | 11                               | 62               | 64        | 42                                 |
| Univ of Wisconsin-Milwaukee           | 103        | 2                     | 5         | 1                                  | 11                         | 9           | 8           | 8               | 0                 | 11         | 17                    | 0       | 9                                | 4                | 7         | 11                                 |
| WYOMING                               |            |                       |           |                                    |                            |             |             |                 |                   |            |                       |         |                                  |                  |           |                                    |
| Univ of Wyoming                       | 63         | 4                     | 7         | 11                                 | 7                          | 3           | 10          | 0               | 3                 | 9          | 0                     | 0       | 0                                | 0                | 9         | 0                                  |
| Univ of Wyoming                       | 63         | 4                     | 7         | 11                                 | 7                          | 3           | 10          | 0               | 3                 | 9          | 0                     | 0       | 0                                | 0                | 9         | 0                                  |

NOTE: Field groupings may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates.

\*Includes 20 respondents for whom doctoral field is unknown.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Top 50 doctorate-granting institutions, 1998

| Rank | Institution                                 | Number | Rank | Institution                              | Number |
|------|---------------------------------------------|--------|------|------------------------------------------|--------|
| 1.   | University of Texas-Austin                  | 834    | 26.  | University of North Carolina-Chapel Hill | 391    |
| 2.   | University of Wisconsin-Madison             | 760    | 27.  | Indiana University-Bloomington           | 380    |
| 3.   | University of California-Berkeley           | 748    | 28.  | University of Colorado at Boulder        | 375    |
| 4.   | University of Minnesota Twin Cities         | 724    | 29.  | University of Pittsburgh-Main Campus     | 373    |
| 5.   | University of Illinois-Urbana/Champaign     | 706    | 30.  | Northwestern University                  | 371    |
| 6.   | University of Michigan-Ann Arbor            | 687    | 31.  | University of Georgia                    | 369    |
| 7.   | Ohio State University-Main Campus           | 664    | 32.  | University of Chicago                    | 368    |
| 8.   | University of California-Los Angeles        | 605    | 33.  | Rutgers University-New Brunswick         | 364    |
| 9.   | Pennsylvania State University-Main Campus   | 597    | 34.  | Johns Hopkins University                 | 363    |
| 10.  | Stanford University                         | 595    | 35.  | Yale University                          | 362    |
| 11.  | Harvard University                          | 560    | 36.  | Virginia Polytechnic Institute & State   | 359    |
| 12.  | Nova Southeastern University                | 543    | 37.  | University of California-Davis           | 337    |
| 13.  | Texas A&M University-College Station        | 528    | 38.  | CUNY-Grad School & University Center     | 333    |
| 14.  | Purdue University-Main Campus               | 496    | 39.  | University of Iowa                       | 327    |
| 15.  | Massachusetts Institute of Technology       | 492    | 40.  | North Carolina State University-Raleigh  | 322    |
| 16.  | University of Washington                    | 478    | 41.  | Florida State University                 | 306    |
| 17.  | University of Maryland-College Park         | 476    | 42.  | University of Virginia-Main Campus       | 303    |
| 17.  | Cornell University-Endowed Colleges         | 476    | 43.  | Iowa State University                    | 300    |
| 19.  | Columbia University in the City of New York | 462    | 44.  | University of Massachusetts-Amherst      | 298    |
| 20.  | University of Florida                       | 457    | 45.  | SUNY at Buffalo                          | 294    |
| 21.  | Michigan State University                   | 436    | 46.  | Arizona State University-Main Campus     | 292    |
| 21.  | University of Pennsylvania                  | 436    | 46.  | Temple University                        | 292    |
| 23.  | New York University                         | 430    | 48.  | University of Kansas-Main Campus         | 287    |
| 24.  | University of Arizona                       | 411    | 49.  | University of Nebraska-Lincoln           | 282    |
| 25.  | University of Southern California           | 403    | 50.  | Boston University                        | 278    |

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

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## APPENDIX B: Trend Tables, 1988-1998

Appendix B includes the following two tables:

B-1: Number of Doctorate Recipients, by Subfield, 1988-1998

B-2: Number of Doctorate Recipients, by Sex, Race/Ethnicity, and Citizenship, 1978, 1983, and 1988-1998

**TABLE B-1:** Table B-1 presents data for the most recent decade by subfield of doctorate. In general, the subfields correspond to the fields on the questionnaire’s Specialties List located at the back of the survey form in appendix D; some subfields, however, do not appear on the current Specialties List because they are no longer included in the survey taxonomy. A dash (—) in a column indicates that the field was not on the Specialties List for that year.

Field groupings in this table may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates (SED); see appendix E for a description of field groupings as reported in these tables. The “general” field categories—for example, “chemistry, general”—include individuals who either received the doctorate in the general subject area or did not indicate a particular specialty field. The “other” field categories—for example, “chemistry, other”—include individuals whose specified doctoral discipline was not among the specialty fields.

The seven tables in appendix-A present additional information on the most recent cohort of research doctorate recipients by field of doctorate.

**TABLE B-2:** Table B-2 displays, by sex and citizenship, data on the race/ethnicity of doctorate recipients for 1978, 1983, and the past decade. Table B-2 contains three panels, each displayed on a separate page. The first panel includes all doctorates; the others disaggregate the data by sex.

*New follow-up procedures implemented in 1990 and later years have increased coverage of several variables, including citizenship and race/ethnicity. One result has been greater postsurvey adjustment to racial/ethnic data than in earlier years. (Note: The greatest adjustment was to the numbers of black doctorate recipients in 1990 and 1991—an increase of about 7.5 percent each year.)*

The racial/ethnic question has undergone several revisions over the years. In 1977 it was modified to correspond to a standard question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in Federally sponsored surveys; an explanation of the effect of these changes is detailed on page 13 of *Summary Report 1977*. (Note: Changes in the OMB guidelines prompted the moving of persons having origins in the Indian subcontinent from the white category to the Asian category.) In 1980 the item was further revised in two ways: (1) the Hispanic category was

subdivided into Puerto Rican, Mexican American, and other Hispanic to provide more detail for users of the racial/ethnic data and (2) respondents were asked to check only one racial category. (Before 1980 doctorate recipients could check more than one category to indicate their race.) The item was modified again 1982 to separate the questions on race and ethnicity. Since then respondents have been asked to first check one of four racial group categories (American Indian, Asian, black, or white) and then indicate whether or not they are Hispanic. In Table B-2, *doctorate recipients who reported Hispanic heritage, regardless of racial designation, are counted as Hispanic*. The remaining survey respondents are then counted in their respective racial groups. (Note: Doctorate recipients who checked the category “American Indian or Alaskan Native” are identified as American Indian in this report.)

Tables A-2 and A-4 in appendix A present additional information on the most recent cohort of doctorate recipients by race/ethnicity.

APPENDIX TABLE B-1. Number of doctorate recipients, by subfield, 1988-1998

| Subfield                                | Year of Doctorate |        |        |        |        |        |        |        |        |         |          |
|-----------------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----------|
|                                         | 1988              | 1989   | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 1996   | 1997    | 1998     |
| <b>TOTAL ALL FIELDS</b>                 | 33,500            | 34,327 | 36,067 | 37,534 | 38,890 | 39,801 | 41,034 | 41,743 | 42,414 | 42,555* | 42,683** |
| <b>PHYSICAL SCIENCES#</b>               | 5,309             | 5,455  | 5,859  | 6,280  | 6,502  | 6,496  | 6,822  | 6,808  | 6,674  | 6,667   | 6,739    |
| <b>MATHEMATICS</b>                      | 749               | 859    | 892    | 1,039  | 1,058  | 1,146  | 1,118  | 1,190  | 1,122  | 1,125   | 1,177    |
| Applied Mathematics                     | 142               | 158    | 185    | 193    | 213    | 188    | 206    | 211    | 230    | 242     | 265      |
| Algebra                                 | 54                | 50     | 39     | 72     | 69     | 84     | 78     | 82     | 78     | 78      | 75       |
| Analysis and Functional Analysis        | 76                | 103    | 90     | 132    | 105    | 105    | 107    | 99     | 100    | 103     | 130      |
| Geometry                                | 44                | 47     | 42     | 66     | 45     | 44     | 35     | 45     | 72     | 70      | 54       |
| Logic                                   | 20                | 12     | 19     | 23     | 28     | 19     | 29     | 35     | 16     | 23      | 16       |
| Number Theory                           | 26                | 23     | 26     | 30     | 25     | 42     | 37     | 35     | 42     | 46      | 46       |
| Mathematical Statistics                 | 152               | 167    | 157    | 206    | 217    | 228    | 205    | 205    | 178    | 181     | 204      |
| Topology                                | 27                | 37     | 50     | 57     | 58     | 54     | 38     | 51     | 55     | 62      | 65       |
| Computing Theory and Practice           | 12                | 12     | 12     | 19     | 12     | 18     | 16     | 14     | 18     | 14      | 18       |
| Operations Research                     | 29                | 22     | 29     | 16     | 22     | 37     | 26     | 36     | 21     | 20      | 17       |
| Mathematics, General                    | 134               | 177    | 191    | 180    | 209    | 276    | 269    | 305    | 233    | 155     | 163      |
| Mathematics, Other                      | 33                | 51     | 52     | 45     | 55     | 51     | 72     | 72     | 79     | 131     | 124      |
| <b>COMPUTER SCIENCE</b>                 | 515               | 612    | 705    | 800    | 869    | 880    | 903    | 997    | 921    | 905     | 923      |
| Computer Science                        | 442               | 519    | 612    | 720    | 791    | 825    | 833    | 913    | 837    | 824     | 817      |
| Information Sciences and Systems        | 73                | 93     | 93     | 80     | 78     | 55     | 70     | 84     | 84     | 81      | 106      |
| <b>PHYSICS AND ASTRONOMY</b>            | 1,302             | 1,274  | 1,393  | 1,411  | 1,537  | 1,544  | 1,692  | 1,652  | 1,676  | 1,597   | 1,584    |
| Astronomy                               | 66                | 49     | 52     | 50     | 55     | 76     | 66     | 89     | 84     | 71      | 91       |
| Astrophysics                            | 64                | 64     | 76     | 75     | 79     | 69     | 78     | 84     | 108    | 125     | 117      |
| Acoustics                               | 16                | 15     | 21     | 13     | 18     | 27     | 20     | 18     | 19     | 19      | 18       |
| Chemical. and Atomic/Molecular          | 77                | 74     | 87     | 76     | 85     | 95     | 140    | 110    | 129    | 106     | 99       |
| Electron                                | 2                 | 4      | 2      | 1      | -      | -      | -      | -      | -      | -       | -        |
| Elementary Particle                     | 174               | 135    | 163    | 182    | 153    | 170    | 176    | 183    | 175    | 170     | 173      |
| Fluids                                  | 17                | 14     | 17     | 14     | 17     | 19     | 12     | 18     | 21     | 24      | 26       |
| Nuclear                                 | 88                | 81     | 73     | 66     | 86     | 82     | 90     | 91     | 87     | 106     | 92       |
| Optics                                  | 65                | 78     | 76     | 85     | 94     | 96     | 104    | 98     | 129    | 123     | 104      |
| Plasma and High-Temperature             | 65                | 61     | 42     | 58     | 65     | 62     | 79     | 46     | 48     | 39      | 55       |
| Polymer                                 | 20                | 7      | 11     | 17     | 17     | 29     | 29     | 23     | 33     | 19      | 24       |
| Solid State and Low-Temperature         | 252               | 296    | 306    | 372    | 408    | 336    | 388    | 371    | 364    | 328     | 313      |
| Physics, General                        | 271               | 269    | 323    | 247    | 297    | 340    | 343    | 355    | 323    | 255     | 190      |
| Physics, Other                          | 125               | 127    | 144    | 155    | 163    | 143    | 167    | 166    | 156    | 212     | 282      |
| <b>CHEMISTRY</b>                        | 2,015             | 1,970  | 2,100  | 2,194  | 2,214  | 2,137  | 2,257  | 2,162  | 2,148  | 2,143   | 2,217    |
| Analytical                              | 301               | 289    | 293    | 304    | 304    | 286    | 334    | 317    | 346    | 350     | 384      |
| Inorganic                               | 250               | 256    | 242    | 260    | 268    | 237    | 262    | 258    | 249    | 277     | 287      |
| Nuclear                                 | 7                 | 6      | 13     | 14     | 7      | 8      | 10     | 5      | 5      | 8       | 5        |
| Organic                                 | 531               | 511    | 452    | 538    | 512    | 518    | 544    | 483    | 506    | 564     | 597      |
| Medicinal/Pharmaceutical                | 73                | 64     | 48     | 83     | 69     | 99     | 102    | 96     | 96     | 105     | 115      |
| Physical                                | 318               | 310    | 325    | 364    | 398    | 336    | 334    | 338    | 300    | 334     | 278      |
| Polymer                                 | 81                | 78     | 81     | 111    | 83     | 107    | 117    | 116    | 121    | 110     | 123      |
| Theoretical                             | 50                | 46     | 55     | 45     | 59     | 53     | 52     | 40     | 57     | 48      | 41       |
| Chemistry, General                      | 310               | 312    | 524    | 400    | 449    | 431    | 447    | 458    | 396    | 261     | 286      |
| Chemistry, Other                        | 94                | 98     | 67     | 75     | 65     | 62     | 55     | 51     | 72     | 86      | 101      |
| <b>EARTH, ATMOS., &amp; MARINE SCI.</b> | 728               | 740    | 769    | 836    | 824    | 789    | 852    | 807    | 807    | 897     | 838      |
| Atmospheric Physics and Chem.           | 19                | 15     | 18     | 20     | 36     | 13     | 27     | 27     | 22     | 44      | 38       |
| Atmospheric Dynamics                    | 25                | 16     | 20     | 21     | 23     | 23     | 27     | 16     | 21     | 25      | 24       |
| Meteorology                             | 35                | 27     | 20     | 31     | 28     | 34     | 32     | 25     | 35     | 28      | 25       |
| Atmos. Sci./Meteorology, General        | 14                | 14     | 23     | 26     | 27     | 22     | 37     | 44     | 33     | 36      | 22       |
| Atmos.Sci./Meteorology, Other           | 10                | 15     | 2      | 10     | 6      | 7      | 6      | 18     | 14     | 15      | 16       |
| Geology                                 | 144               | 165    | 166    | 192    | 166    | 197    | 194    | 186    | 162    | 164     | 171      |
| Geochemistry                            | 46                | 39     | 56     | 64     | 62     | 50     | 59     | 42     | 49     | 49      | 58       |
| Geophysics and Seismology               | 83                | 87     | 91     | 117    | 108    | 101    | 106    | 93     | 101    | 108     | 106      |
| Paleontology                            | 24                | 17     | 21     | 24     | 25     | 21     | 17     | 20     | 14     | 23      | 23       |
| Mineralogy, Petrology                   | 19                | 36     | 26     | 36     | 29     | 9      | 21     | 19     | 23     | 18      | 14       |
| Stratigraphy, Sedimentation             | 30                | 24     | 25     | 29     | 23     | 28     | 27     | 16     | 12     | 23      | 24       |
| Geomorphology and Glacial Geology       | 9                 | 10     | 14     | 18     | 12     | 16     | 13     | 11     | 11     | 26      | 20       |
| Applied Geology                         | 7                 | 6      | 6      | 1      | 0      | 0      | 0      | 0      | 0      | 0       | 0        |
| Geological & Related Sci., General      | 8                 | 19     | 31     | 30     | 18     | 15     | 18     | 21     | 27     | 16      | 13       |
| Geological & Related Sci., Other        | 31                | 28     | 28     | 33     | 31     | 17     | 24     | 22     | 22     | 17      | 40       |
| Environmental Science                   | 58                | 68     | 50     | 35     | 57     | 68     | 61     | 81     | 83     | 96      | 73       |
| Hydrology and Water Resources           | 24                | 24     | 13     | 16     | 29     | 25     | 30     | 24     | 31     | 43      | 35       |
| Oceanography                            | 81                | 87     | 89     | 85     | 82     | 98     | 91     | 83     | 107    | 114     | 94       |
| Marine Sciences                         | 28                | 26     | 39     | 27     | 32     | 27     | 34     | 32     | 27     | 30      | 18       |
| Misc. Physical Sciences, Other          | 33                | 17     | 31     | 21     | 30     | 18     | 28     | 27     | 13     | 22      | 24       |
| <b>ENGINEERING</b>                      | 4,187             | 4,543  | 4,894  | 5,214  | 5,438  | 5,698  | 5,822  | 6,008  | 6,305  | 6,098   | 5,919    |
| Aerospace, Aeronautic. & Astronautic.   | 150               | 178    | 192    | 207    | 234    | 228    | 230    | 252    | 287    | 270     | 242      |
| Agricultural                            | 70                | 102    | 101    | 83     | 84     | 86     | 89     | 73     | 104    | 79      | 73       |
| Bioengineering and Biomedical           | 114               | 115    | 129    | 149    | 147    | 171    | 173    | 189    | 220    | 210     | 207      |
| Ceramic Sciences                        | 30                | 35     | 43     | 58     | 42     | 42     | 39     | 39     | 41     | 39      | 24       |
| Chemical                                | 624               | 625    | 561    | 621    | 607    | 624    | 630    | 602    | 681    | 662     | 667      |
| Civil                                   | 488               | 498    | 505    | 509    | 540    | 563    | 602    | 572    | 599    | 592     | 587      |
| Communications                          | 24                | 25     | 35     | 21     | 30     | 22     | 33     | 29     | 32     | 33      | 40       |
| Computer                                | 100               | 117    | 131    | 178    | 175    | 167    | 202    | 189    | 208    | 227     | 210      |
| Electrical, Electronics                 | 886               | 995    | 1,110  | 1,206  | 1,278  | 1,354  | 1,438  | 1,513  | 1,500  | 1,458   | 1,343    |
| Engineering Mechanics                   | 105               | 110    | 111    | 113    | 132    | 128    | 132    | 108    | 105    | 93      | 86       |
| Engineering Physics                     | 9                 | 16     | 16     | 23     | 25     | 21     | 17     | 17     | 37     | 24      | 15       |
| Engineering Science                     | 32                | 27     | 37     | 42     | 51     | 55     | 46     | 56     | 52     | 45      | 50       |

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-1. Number of doctorate recipients, by subfield, 1988-1998

| Subfield                              | Year of Doctorate |              |              |              |              |              |              |              |              |              |              |
|---------------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                                       | 1988              | 1989         | 1990         | 1991         | 1992         | 1993         | 1994         | 1995         | 1996         | 1997         | 1998         |
| Environmental Health Engineering      | 43                | 40           | 48           | 66           | 54           | 61           | 82           | 84           | 98           | 63           | 63           |
| Industrial/Manufacturing              | 127               | 162          | 151          | 165          | 196          | 236          | 228          | 284          | 258          | 242          | 227          |
| Materials Science                     | 252               | 257          | 307          | 361          | 365          | 416          | 433          | 476          | 470          | 481          | 482          |
| Mechanical                            | 610               | 650          | 773          | 762          | 855          | 902          | 883          | 917          | 947          | 924          | 936          |
| Metallurgical                         | 92                | 88           | 90           | 70           | 78           | 77           | 67           | 73           | 61           | 60           | 59           |
| Mining and Mineral                    | 17                | 33           | 39           | 38           | 26           | 24           | 23           | 19           | 31           | 33           | 21           |
| Naval Architecture, Marine Eng.       | 9                 | 9            | 8            | 5            | -            | -            | -            | -            | -            | -            | -            |
| Nuclear                               | 104               | 86           | 114          | 107          | 120          | 108          | 85           | 105          | 113          | 102          | 97           |
| Ocean                                 | 21                | 20           | 17           | 21           | 21           | 24           | 29           | 21           | 26           | 34           | 29           |
| Operations Research                   | 44                | 68           | 46           | 76           | 56           | 56           | 47           | 48           | 74           | 74           | 62           |
| Petroleum                             | 33                | 29           | 49           | 28           | 54           | 52           | 42           | 48           | 52           | 51           | 48           |
| Polymer/Plastics                      | 28                | 58           | 48           | 42           | 64           | 61           | 53           | 58           | 65           | 54           | 59           |
| Systems                               | 44                | 30           | 51           | 48           | 37           | 57           | 51           | 47           | 47           | 49           | 68           |
| Engineering, General                  | 49                | 61           | 75           | 78           | 64           | 47           | 39           | 60           | 60           | 51           | 30           |
| Engineering, Other                    | 82                | 109          | 107          | 137          | 103          | 116          | 129          | 129          | 137          | 148          | 194          |
| <b>LIFE SCIENCES</b>                  | <b>6,164</b>      | <b>6,342</b> | <b>6,605</b> | <b>6,933</b> | <b>7,115</b> | <b>7,395</b> | <b>7,739</b> | <b>7,918</b> | <b>8,255</b> | <b>8,311</b> | <b>8,540</b> |
| <b>BIOLOGICAL SCIENCES</b>            | <b>4,111</b>      | <b>4,116</b> | <b>4,328</b> | <b>4,650</b> | <b>4,799</b> | <b>5,092</b> | <b>5,203</b> | <b>5,376</b> | <b>5,723</b> | <b>5,777</b> | <b>5,848</b> |
| Biochemistry                          | 612               | 669          | 678          | 765          | 715          | 846          | 804          | 824          | 794          | 830          | 798          |
| Biomedical Sciences                   | -                 | -            | -            | -            | -            | -            | -            | 93           | 140          | 158          | 184          |
| Biophysics                            | 97                | 87           | 103          | 100          | 125          | 103          | 123          | 155          | 142          | 147          | 166          |
| Biotechnology Research                | -                 | -            | -            | -            | -            | 8            | 14           | 4            | 6            | 11           | 12           |
| Bacteriology                          | 7                 | 11           | 15           | 11           | 13           | 14           | 18           | 13           | 16           | 13           | 13           |
| Plant Genetics                        | 26                | 18           | 31           | 23           | 33           | 41           | 30           | 35           | 41           | 30           | 40           |
| Plant Pathology                       | 30                | 22           | 37           | 50           | 32           | 41           | 40           | 32           | 38           | 33           | 18           |
| Plant Physiology                      | 74                | 47           | 51           | 65           | 68           | 48           | 70           | 55           | 73           | 47           | 61           |
| Botany, Other                         | 112               | 117          | 104          | 105          | 107          | 105          | 117          | 102          | 105          | 91           | 113          |
| Anatomy                               | 88                | 80           | 70           | 77           | 75           | 76           | 66           | 64           | 47           | 50           | 35           |
| Biometrics and Biostatistics          | 47                | 46           | 47           | 59           | 63           | 74           | 72           | 67           | 81           | 84           | 75           |
| Cell Biology                          | 118               | 133          | 145          | 149          | 188          | 231          | 237          | 236          | 233          | 250          | 299          |
| Ecology                               | 155               | 161          | 166          | 189          | 180          | 177          | 201          | 203          | 245          | 255          | 292          |
| Developmental Biology/Embryology      | 7                 | 10           | 22           | 37           | 48           | 57           | 62           | 64           | 96           | 115          | 127          |
| Endocrinology                         | 21                | 21           | 24           | 33           | 27           | 16           | 26           | 20           | 24           | 17           | 30           |
| Entomology                            | 133               | 139          | 147          | 138          | 139          | 114          | 123          | 121          | 136          | 123          | 138          |
| Biological Immunology                 | 179               | 152          | 153          | 177          | 181          | 169          | 161          | 190          | 238          | 214          | 245          |
| Molecular Biology                     | 364               | 413          | 413          | 481          | 527          | 582          | 598          | 617          | 651          | 771          | 741          |
| Microbiology                          | 333               | 340          | 335          | 372          | 377          | 433          | 423          | 426          | 444          | 409          | 384          |
| Neuroscience                          | 163               | 181          | 192          | 238          | 238          | 276          | 284          | 309          | 404          | 435          | 412          |
| Nutritional Sciences                  | 127               | 128          | 118          | 106          | 132          | 134          | 147          | 136          | 142          | 124          | 137          |
| Parasitology                          | 20                | 20           | 13           | 20           | 17           | 17           | 22           | 14           | 22           | 17           | 15           |
| Toxicology                            | 108               | 111          | 91           | 86           | 105          | 100          | 120          | 126          | 138          | 180          | 156          |
| Human and Animal Genetics             | 118               | 112          | 153          | 160          | 142          | 172          | 203          | 202          | 212          | 217          | 196          |
| Human and Animal Pathology            | 112               | 105          | 101          | 122          | 114          | 130          | 128          | 109          | 135          | 106          | 91           |
| Human and Animal Pharmacology         | 252               | 242          | 244          | 266          | 279          | 274          | 259          | 278          | 316          | 300          | 256          |
| Human and Animal Physiology           | 225               | 272          | 278          | 272          | 266          | 271          | 289          | 262          | 275          | 227          | 258          |
| Zoology, Other                        | 167               | 132          | 122          | 125          | 134          | 114          | 117          | 145          | 100          | 96           | 111          |
| Biological Sciences, General          | 256               | 231          | 333          | 278          | 315          | 305          | 288          | 348          | 291          | 208          | 217          |
| Biological Sciences, Other            | 160               | 116          | 142          | 146          | 159          | 164          | 161          | 126          | 138          | 219          | 228          |
| <b>HEALTH SCIENCES</b>                | <b>882</b>        | <b>974</b>   | <b>956</b>   | <b>1,041</b> | <b>1,112</b> | <b>1,197</b> | <b>1,296</b> | <b>1,330</b> | <b>1,324</b> | <b>1,422</b> | <b>1,500</b> |
| Speech-Lang. Pathology & Audiology    | 93                | 91           | 93           | 90           | 82           | 98           | 95           | 106          | 94           | 88           | 95           |
| Environmental Health                  | 52                | 35           | 38           | 38           | 44           | 38           | 51           | 51           | 58           | 67           | 54           |
| Health Systems/Services Admin.        | -                 | -            | -            | -            | -            | 35           | 53           | 62           | 60           | 66           | 63           |
| Public Health                         | 121               | 129          | 123          | 132          | 157          | 153          | 142          | 152          | 156          | 139          | 157          |
| Epidemiology                          | 97                | 107          | 102          | 115          | 108          | 120          | 168          | 153          | 149          | 151          | 166          |
| Exercise Physiology/Sci., Kinesiology | -                 | -            | -            | -            | -            | -            | 87           | 118          | 105          | 105          | 129          |
| Nursing                               | 247               | 308          | 261          | 325          | 338          | 373          | 336          | 354          | 354          | 420          | 399          |
| Pharmacy                              | 95                | 111          | 116          | 115          | 160          | 146          | 148          | 144          | 145          | 142          | 156          |
| Rehabilitation/Therapeutic Services   | -                 | -            | -            | 17           | 25           | 36           | 43           | 20           | 26           | 34           | 33           |
| Veterinary Medicine                   | 48                | 48           | 70           | 56           | 63           | 61           | 56           | 55           | 65           | 46           | 48           |
| Health Sciences, General              | 29                | 19           | 36           | 28           | 30           | 38           | 41           | 35           | 22           | 45           | 17           |
| Health Sciences, Other                | 100               | 126          | 117          | 125          | 105          | 99           | 76           | 80           | 90           | 119          | 183          |
| <b>AGRICULTURAL SCIENCES</b>          | <b>1,171</b>      | <b>1,252</b> | <b>1,321</b> | <b>1,242</b> | <b>1,204</b> | <b>1,106</b> | <b>1,240</b> | <b>1,212</b> | <b>1,208</b> | <b>1,112</b> | <b>1,192</b> |
| Agricultural Economics                | 156               | 164          | 145          | 168          | 141          | 137          | 162          | 173          | 169          | 133          | 155          |
| Agricultural Business & Management    | 0                 | 2            | 2            | 1            | 0            | 1            | 0            | 3            | 2            | 1            | 2            |
| Animal Breeding and Genetics          | 27                | 23           | 22           | 18           | 23           | 18           | 17           | 19           | 12           | 24           | 18           |
| Animal Nutrition                      | 54                | 67           | 54           | 57           | 41           | 52           | 58           | 50           | 54           | 55           | 45           |
| Dairy Science                         | 12                | 16           | 20           | 19           | 14           | 11           | 11           | 14           | 9            | 14           | 10           |
| Poultry Science                       | 10                | 11           | 17           | 13           | 22           | 16           | 21           | 11           | 12           | 9            | 11           |
| Fisheries Science and Management      | 42                | 34           | 42           | 39           | 26           | 38           | 48           | 49           | 46           | 45           | 30           |
| Animal Sciences, Other                | 86                | 95           | 90           | 92           | 97           | 74           | 86           | 85           | 90           | 61           | 60           |
| Agronomy and Crop Science             | 141               | 140          | 143          | 117          | 123          | 104          | 143          | 114          | 110          | 77           | 96           |
| Plant Breeding and Genetics           | 83                | 64           | 87           | 69           | 82           | 68           | 81           | 72           | 63           | 67           | 69           |
| Plant Pathology                       | 46                | 63           | 64           | 90           | 63           | 58           | 55           | 52           | 90           | 65           | 66           |
| Plant Protection-Pest Management      | 1                 | 6            | 4            | 2            | -            | -            | -            | -            | -            | -            | -            |
| Plant Sciences, Other                 | 23                | 15           | 23           | 17           | 29           | 28           | 24           | 30           | 21           | 20           | 37           |
| Food Sciences                         | 16                | 1            | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| Food Distribution                     | 0                 | 0            | 0            | 0            | 0            | 0            | 1            | -            | -            | -            | -            |
| Food Engineering                      | 6                 | 11           | 10           | 12           | 14           | 9            | 16           | 7            | 7            | 11           | 13           |
| Food Sciences, Other                  | 119               | 147          | 141          | 137          | 151          | 141          | 152          | 135          | 142          | 174          | 153          |
| Soil Sciences                         | 18                | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| Soil Chemistry/Microbiology           | 33                | 28           | 27           | 24           | 24           | 26           | 21           | 27           | 29           | 32           | 27           |
| Soil Sciences, Other                  | 62                | 75           | 91           | 78           | 63           | 59           | 69           | 72           | 78           | 56           | 74           |
| Horticulture Science                  | 61                | 75           | 101          | 78           | 65           | 62           | 65           | 67           | 73           | 44           | 60           |

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates



APPENDIX TABLE B-1. Number of doctorate recipients, by subfield, 1988-1998

| Subfield                              | Year of Doctorate |              |              |              |              |              |              |              |              |              |              |
|---------------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                                       | 1988              | 1989         | 1990         | 1991         | 1992         | 1993         | 1994         | 1995         | 1996         | 1997         | 1998         |
| Wildlife Management                   | 3                 | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| Forestry Science                      | 15                | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| Forest Biology                        | 21                | 22           | 27           | 17           | 29           | 18           | 20           | 24           | 19           | 22           | 20           |
| Forest Engineering                    | 3                 | 1            | 2            | 2            | 2            | 3            | 0            | 4            | 0            | 13           | 2            |
| Forest Management                     | 18                | 21           | 14           | 22           | 16           | 17           | 17           | 20           | 22           | 21           | 27           |
| Wood Sci. & Pulp/Paper Tech.          | 7                 | 16           | 16           | 16           | 21           | 20           | 26           | 26           | 18           | 25           | 25           |
| Conservation/Renewable Nat. Res.      | 7                 | 12           | 16           | 19           | 9            | 13           | 21           | 24           | 13           | 17           | 25           |
| Forestry and Related Sci., Other      | 35                | 57           | 62           | 45           | 62           | 55           | 59           | 71           | 56           | 50           | 69           |
| Wildlife/Range Management             | 36                | 52           | 58           | 59           | 55           | 54           | 52           | 50           | 64           | 50           | 55           |
| Agricultural Sciences, General        | 9                 | 7            | 5            | 3            | 9            | 10           | 4            | 6            | 5            | 8            | 8            |
| Agricultural Sciences, Other          | 21                | 27           | 38           | 28           | 23           | 14           | 11           | 7            | 4            | 18           | 35           |
| <b>SOCIAL SCIENCES (INCL. PSYCH.)</b> | <b>5,781</b>      | <b>5,961</b> | <b>6,093</b> | <b>6,152</b> | <b>6,216</b> | <b>6,545</b> | <b>6,613</b> | <b>6,635</b> | <b>6,814</b> | <b>7,037</b> | <b>7,075</b> |
| Anthropology                          | 325               | 325          | 324          | 341          | 320          | 342          | 384          | 375          | 396          | 431          | 425          |
| Area Studies                          | 16                | 17           | 22           | 24           | 33           | 36           | 34           | 27           | 28           | 10           | 14           |
| Criminology                           | 43                | 32           | 42           | 35           | 37           | 39           | 41           | 44           | 60           | 49           | 55           |
| Demography/Population Studies         | 19                | 22           | 20           | 28           | 17           | 22           | 23           | 15           | 11           | 24           | 31           |
| Economics                             | 825               | 872          | 836          | 861          | 885          | 906          | 913          | 952          | 979          | 997          | 973          |
| Econometrics                          | 27                | 26           | 26           | 24           | 25           | 24           | 26           | 27           | 29           | 31           | 25           |
| Geography                             | 129               | 105          | 131          | 108          | 111          | 137          | 146          | 150          | 165          | 149          | 154          |
| International Relations/Affairs       | 77                | 94           | 97           | 88           | 76           | 102          | 112          | 73           | 99           | 88           | 97           |
| Political Science and Government      | 392               | 430          | 462          | 434          | 513          | 507          | 589          | 600          | 621          | 661          | 662          |
| Public Policy Analysis                | 73                | 79           | 87           | 111          | 107          | 98           | 94           | 93           | 104          | 126          | 97           |
| Sociology                             | 449               | 436          | 428          | 465          | 495          | 513          | 525          | 540          | 516          | 574          | 549          |
| Statistics                            | 47                | 69           | 69           | 31           | 29           | 48           | 46           | 48           | 48           | 56           | 60           |
| Urban Affairs/Studies                 | 86                | 62           | 67           | 90           | 86           | 123          | 132          | 103          | 106          | 92           | 75           |
| Social Sciences, General              | 28                | 26           | 23           | 36           | 33           | 32           | 21           | 35           | 26           | 26           | 30           |
| Social Sciences, Other                | 171               | 158          | 178          | 226          | 186          | 196          | 148          | 124          | 135          | 157          | 147          |
| <b>PSYCHOLOGY</b>                     | <b>3,074</b>      | <b>3,208</b> | <b>3,281</b> | <b>3,250</b> | <b>3,263</b> | <b>3,420</b> | <b>3,379</b> | <b>3,429</b> | <b>3,340</b> | <b>3,440</b> | <b>3,563</b> |
| Clinical                              | 1,095             | 1,259        | 1,337        | 1,305        | 1,309        | 1,373        | 1,285        | 1,291        | 1,325        | 1,268        | 1,350        |
| Cognitive and Psycholinguistics       | 83                | 79           | 76           | 94           | 101          | 104          | 129          | 104          | 128          | 166          | 113          |
| Comparative                           | 7                 | 8            | 8            | 7            | 2            | 5            | 8            | 4            | 3            | 6            | 6            |
| Counseling                            | 482               | 501          | 466          | 497          | 507          | 488          | 497          | 470          | 464          | 487          | 448          |
| Developmental and Child               | 176               | 148          | 159          | 155          | 170          | 202          | 179          | 152          | 188          | 215          | 267          |
| Human/Individual & Family Develop.    | -                 | -            | -            | -            | -            | -            | 129          | 150          | 151          | 123          | 118          |
| Experimental                          | 135               | 146          | 143          | 142          | 154          | 143          | 139          | 151          | 128          | 145          | 149          |
| Educational                           | 103               | 105          | 98           | 110          | 91           | 91           | 69           | 74           | 92           | 61           | 61           |
| Family and Marriage Counseling        | -                 | -            | -            | -            | -            | -            | -            | 57           | 52           | 64           | 51           |
| Industrial and Organizational         | 118               | 104          | 126          | 142          | 138          | 159          | 137          | 155          | 162          | 185          | 189          |
| Personality                           | 18                | 28           | 20           | 13           | 17           | 22           | 19           | 16           | 24           | 25           | 24           |
| Physiological/Psychobiology           | 85                | 62           | 46           | 45           | 55           | 85           | 93           | 92           | 80           | 77           | 92           |
| Psychometrics                         | 11                | 6            | 8            | 9            | 5            | 9            | 5            | 10           | 11           | 11           | 8            |
| Quantitative                          | 12                | 11           | 15           | 7            | 10           | 16           | 17           | 13           | 19           | 17           | 15           |
| School                                | 115               | 107          | 82           | 82           | 88           | 95           | 84           | 91           | 82           | 84           | 106          |
| Social                                | 140               | 128          | 145          | 147          | 139          | 125          | 153          | 155          | 170          | 181          | 186          |
| Psychology, General                   | 368               | 364          | 371          | 324          | 295          | 306          | 280          | 306          | 279          | 319          | 302          |
| Psychology, Other                     | 126               | 152          | 181          | 171          | 182          | 197          | 156          | 138          | 133          | 129          | 196          |
| <b>HUMANITIES</b>                     | <b>3,555</b>      | <b>3,552</b> | <b>3,822</b> | <b>4,099</b> | <b>4,444</b> | <b>4,482</b> | <b>4,744</b> | <b>5,061</b> | <b>5,116</b> | <b>5,424</b> | <b>5,499</b> |
| History, American                     | 209               | 206          | 211          | 251          | 277          | 269          | 310          | 344          | 355          | 372          | 407          |
| History, Asian                        | -                 | -            | -            | -            | -            | -            | -            | 43           | 54           | 54           | 70           |
| History, European                     | 127               | 107          | 151          | 127          | 176          | 162          | 180          | 185          | 187          | 245          | 230          |
| History/Philosophy of Sci. & Tech.    | 22                | 20           | 26           | 27           | 28           | 37           | 27           | 41           | 37           | 34           | 43           |
| History, General                      | 103               | 85           | 111          | 121          | 102          | 116          | 140          | 148          | 101          | 82           | 86           |
| History, Other                        | 142               | 120          | 113          | 137          | 141          | 142          | 144          | 128          | 123          | 176          | 152          |
| Classics                              | 56                | 51           | 58           | 55           | 58           | 61           | 84           | 62           | 72           | 53           | 84           |
| Comparative Literature                | 139               | 103          | 97           | 150          | 163          | 153          | 163          | 191          | 164          | 181          | 162          |
| Linguistics                           | 166               | 188          | 167          | 227          | 266          | 214          | 221          | 201          | 230          | 244          | 219          |
| Speech and Rhetorical Studies         | 37                | 35           | 38           | 86           | 98           | 111          | 142          | 139          | 155          | 137          | 168          |
| Letters, General                      | 16                | 13           | 19           | 17           | 18           | 18           | 22           | 43           | 28           | 23           | 22           |
| Letters, Other                        | 43                | 60           | 52           | 44           | 38           | 37           | 25           | 34           | 61           | 60           | 82           |
| American Studies                      | 70                | 76           | 72           | 92           | 81           | 101          | 88           | 94           | 115          | 82           | 100          |
| Archeology                            | 23                | 26           | 22           | 33           | 33           | 38           | 34           | 35           | 21           | 35           | 34           |
| Art History/Criticism/Conservation    | 134               | 145          | 135          | 125          | 154          | 158          | 182          | 181          | 176          | 186          | 220          |
| Music                                 | 504               | 521          | 572          | 587          | 641          | 613          | 685          | 713          | 699          | 727          | 694          |
| Philosophy                            | 222               | 270          | 243          | 285          | 279          | 274          | 302          | 298          | 369          | 447          | 408          |
| Religion                              | 217               | 215          | 219          | 187          | 231          | 257          | 252          | 248          | 317          | 299          | 327          |
| Drama/Theater Arts                    | 92                | 79           | 106          | 91           | 95           | 91           | 102          | 80           | 103          | 116          | 91           |
| <b>LANGUAGE AND LITERATURE</b>        | <b>1,147</b>      | <b>1,152</b> | <b>1,308</b> | <b>1,350</b> | <b>1,465</b> | <b>1,524</b> | <b>1,537</b> | <b>1,718</b> | <b>1,618</b> | <b>1,746</b> | <b>1,718</b> |
| American                              | 186               | 192          | 229          | 253          | 291          | 293          | 296          | 327          | 314          | 407          | 388          |
| English                               | 531               | 528          | 567          | 599          | 612          | 655          | 647          | 752          | 699          | 686          | 688          |
| French                                | 101               | 106          | 123          | 100          | 124          | 137          | 129          | 151          | 142          | 150          | 137          |
| German                                | 76                | 73           | 78           | 71           | 96           | 105          | 67           | 93           | 88           | 82           | 106          |
| Italian                               | 14                | 20           | 25           | 32           | 20           | 19           | 32           | 35           | 24           | 23           | 33           |
| Spanish                               | 137               | 134          | 173          | 173          | 179          | 179          | 212          | 209          | 196          | 250          | 207          |
| Russian                               | 13                | 13           | 19           | 25           | 28           | 28           | 38           | 28           | 37           | 39           | 43           |
| Slavic                                | 5                 | 7            | 7            | 14           | 15           | 13           | 10           | 16           | 11           | 9            | 15           |
| Chinese                               | 12                | 9            | 16           | 19           | 20           | 21           | 25           | 20           | 29           | 23           | 18           |
| Japanese                              | 6                 | 13           | 9            | 7            | 12           | 11           | 12           | 7            | 10           | 19           | 11           |
| Hebrew                                | 12                | 10           | 14           | 11           | 20           | 15           | 10           | 11           | 12           | 7            | 8            |
| Arabic                                | 14                | 6            | 7            | 4            | 12           | 10           | 4            | 8            | 6            | 4            | 9            |
| Other Language and Literature         | 40                | 41           | 41           | 42           | 36           | 38           | 55           | 61           | 50           | 47           | 55           |

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APPENDIX TABLE B-1. Number of doctorate recipients, by subfield, 1988-1998

| Subfield                              | Year of Doctorate |              |              |              |              |              |              |              |              |              |              |
|---------------------------------------|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                                       | 1988              | 1989         | 1990         | 1991         | 1992         | 1993         | 1994         | 1995         | 1996         | 1997         | 1998         |
| Humanities, General                   | 25                | 19           | 28           | 29           | 21           | 30           | 32           | 25           | 39           | 25           | 23           |
| Humanities, Other                     | 61                | 61           | 74           | 78           | 79           | 76           | 72           | 110          | 92           | 100          | 159          |
| <b>EDUCATION</b>                      | <b>6,362</b>      | <b>6,281</b> | <b>6,510</b> | <b>6,454</b> | <b>6,677</b> | <b>6,689</b> | <b>6,708</b> | <b>6,649</b> | <b>6,772</b> | <b>6,549</b> | <b>6,559</b> |
| Curriculum and Instruction            | 815               | 841          | 839          | 807          | 900          | 856          | 819          | 896          | 896          | 914          | 885          |
| Educational Admin. and Supervision    | 1,749             | 1,633        | 1,663        | 1,428        | 1,290        | 1,340        | 1,207        | 1,086        | 1,170        | 1,016        | 949          |
| Educational Leadership                | 0                 | 0            | 1            | 485          | 694          | 783          | 792          | 889          | 989          | 1,033        | 1,114        |
| Educ./Instruct. Media Design          | 67                | 76           | 55           | 73           | 62           | 96           | 111          | 121          | 107          | 92           | 91           |
| Educ. Stat./Research Methods          | 51                | 59           | 59           | 80           | 61           | 64           | 68           | 63           | 76           | 58           | 56           |
| Educ.Assess., Test., & Meas.          | 55                | 42           | 40           | 32           | 45           | 23           | 28           | 19           | 32           | 30           | 35           |
| Educational Psychology                | 323               | 301          | 323          | 323          | 346          | 290          | 311          | 297          | 309          | 360          | 325          |
| School Psychology                     | 98                | 85           | 87           | 90           | 88           | 86           | 97           | 71           | 114          | 115          | 112          |
| Social/Phil. Found. of Educ.          | 122               | 110          | 86           | 109          | 101          | 109          | 140          | 130          | 125          | 138          | 129          |
| Special Education                     | 257               | 259          | 225          | 226          | 260          | 277          | 241          | 254          | 278          | 268          | 248          |
| Counseling Educ./Couns. & Guidance    | 325               | 264          | 301          | 270          | 259          | 288          | 284          | 268          | 277          | 207          | 269          |
| Higher Educ./ Evaluation & Research   | 399               | 373          | 424          | 344          | 381          | 357          | 428          | 457          | 481          | 504          | 430          |
| Pre-elementary/Early Childhood        | 83                | 63           | 42           | 85           | 98           | 97           | 91           | 70           | 81           | 42           | 54           |
| Elementary Education                  | 93                | 99           | 110          | 73           | 73           | 65           | 71           | 61           | 46           | 56           | 62           |
| Junior High Education                 | 1                 | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            |
| Secondary Education                   | 67                | 53           | 56           | 40           | 28           | 33           | 24           | 24           | 34           | 25           | 55           |
| Adult and Continuing Education        | 229               | 236          | 211          | 210          | 208          | 233          | 215          | 235          | 210          | 162          | 168          |
| <b>TEACHING FIELDS</b>                | <b>989</b>        | <b>970</b>   | <b>922</b>   | <b>973</b>   | <b>1,008</b> | <b>943</b>   | <b>960</b>   | <b>924</b>   | <b>863</b>   | <b>905</b>   | <b>951</b>   |
| Agricultural Education                | 32                | 35           | 38           | 49           | 43           | 54           | 52           | 35           | 32           | 38           | 25           |
| Art Education                         | 42                | 39           | 44           | 28           | 46           | 38           | 33           | 39           | 41           | 30           | 46           |
| Business Education                    | 44                | 40           | 34           | 32           | 16           | 27           | 25           | 21           | 20           | 25           | 30           |
| English Education                     | 57                | 51           | 52           | 58           | 61           | 53           | 56           | 60           | 57           | 62           | 53           |
| Foreign Languages Education           | 53                | 33           | 31           | 46           | 50           | 48           | 54           | 60           | 44           | 45           | 73           |
| Health Education                      | 86                | 100          | 95           | 78           | 98           | 83           | 97           | 99           | 90           | 58           | 70           |
| Home Economics Education              | 17                | 19           | 10           | 21           | 12           | 14           | 11           | 15           | 13           | 13           | 8            |
| Technical/Industrial Arts Education   | 11                | 17           | 17           | 13           | 11           | 16           | 20           | 15           | 11           | 19           | 30           |
| Mathematics Education                 | 56                | 69           | 65           | 73           | 62           | 69           | 74           | 92           | 100          | 91           | 115          |
| Music Education                       | 76                | 97           | 78           | 96           | 96           | 80           | 89           | 96           | 91           | 100          | 94           |
| Nursing Education                     | 34                | 29           | 24           | 18           | 29           | 19           | 24           | 18           | 23           | 22           | 14           |
| Physical Education and Coaching       | 184               | 176          | 191          | 185          | 167          | 161          | 139          | 104          | 101          | 108          | 108          |
| Reading Education                     | 74                | 95           | 82           | 102          | 121          | 95           | 97           | 85           | 66           | 68           | 77           |
| Science Education                     | 67                | 48           | 72           | 72           | 73           | 73           | 85           | 73           | 96           | 76           | 109          |
| Social Science Education              | 23                | 13           | 11           | 19           | 19           | 9            | 10           | 14           | 12           | 25           | 15           |
| Speech Education                      | 5                 | 1            | 5            | 1            | -            | -            | -            | -            | -            | -            | -            |
| Technical Education                   | 13                | 28           | 15           | 25           | 35           | 21           | 30           | 20           | 24           | 32           | 18           |
| Trade and Industrial Education        | 67                | 47           | 18           | 17           | 11           | 24           | 24           | 13           | 12           | 16           | 14           |
| Teacher Ed./Spec. Acad. & Voc., Other | 48                | 33           | 40           | 40           | 58           | 59           | 40           | 65           | 30           | 77           | 52           |
| Education, General                    | 358               | 414          | 535          | 428          | 443          | 411          | 484          | 429          | 353          | 338          | 235          |
| Education, Other                      | 281               | 403          | 531          | 378          | 332          | 338          | 337          | 355          | 331          | 286          | 391          |
| <b>PROFESSIONAL/OTHER FIELDS</b>      | <b>2,142</b>      | <b>2,193</b> | <b>2,284</b> | <b>2,402</b> | <b>2,498</b> | <b>2,496</b> | <b>2,586</b> | <b>2,664</b> | <b>2,478</b> | <b>2,452</b> | <b>2,332</b> |
| <b>BUSINESS AND MANAGEMENT</b>        | <b>1,033</b>      | <b>1,067</b> | <b>1,036</b> | <b>1,163</b> | <b>1,248</b> | <b>1,281</b> | <b>1,283</b> | <b>1,327</b> | <b>1,276</b> | <b>1,236</b> | <b>1,165</b> |
| Accounting                            | 175               | 186          | 172          | 172          | 180          | 183          | 179          | 168          | 156          | 150          | 154          |
| Banking/Financial Support Services    | 148               | 151          | 134          | 172          | 172          | 170          | 134          | 163          | 114          | 69           | 83           |
| Business Admin. and Management        | 265               | 245          | 277          | 204          | 241          | 324          | 319          | 340          | 393          | 421          | 342          |
| Business/Managerial Economics         | 27                | 27           | 21           | 19           | 21           | 33           | 40           | 37           | 38           | 47           | 56           |
| International Business                | -                 | -            | -            | -            | -            | -            | 22           | 23           | 36           | 39           | 33           |
| Mgmt. Info. Sys./Business Data Proc.  | -                 | -            | -            | 72           | 103          | 102          | 117          | 111          | 94           | 100          | 86           |
| Marketing Management and Research     | 126               | 130          | 120          | 134          | 139          | 166          | 167          | 153          | 153          | 153          | 143          |
| Business Statistics                   | 6                 | 15           | 10           | 5            | -            | -            | -            | -            | -            | -            | -            |
| Operations Research                   | 50                | 52           | 46           | 58           | 67           | 63           | 54           | 59           | 64           | 44           | 57           |
| Organizational Behavior               | 74                | 95           | 64           | 72           | 81           | 73           | 102          | 100          | 108          | 121          | 103          |
| Bus. Mgmt./Admin. Serv., General      | 75                | 57           | 70           | 123          | 112          | 87           | 87           | 92           | 67           | 28           | 36           |
| Bus. Mgmt./Admin. Serv., Other        | 87                | 109          | 122          | 132          | 132          | 80           | 62           | 81           | 53           | 64           | 72           |
| <b>COMMUNICATIONS</b>                 | <b>247</b>        | <b>306</b>   | <b>323</b>   | <b>332</b>   | <b>330</b>   | <b>321</b>   | <b>371</b>   | <b>380</b>   | <b>389</b>   | <b>332</b>   | <b>372</b>   |
| Communications Research               | 72                | 85           | 87           | 72           | 45           | 33           | 40           | 40           | 60           | 51           | 52           |
| Journalism                            | 21                | 15           | 21           | 7            | -            | -            | -            | -            | -            | -            | -            |
| Mass Communications                   | -                 | -            | -            | 68           | 85           | 117          | 156          | 121          | 137          | 117          | 141          |
| Radio and Television                  | 12                | 29           | 17           | 6            | -            | -            | -            | -            | -            | -            | -            |
| Communication Theory                  | -                 | -            | -            | 25           | 47           | 41           | 45           | 53           | 37           | 40           | 48           |
| Communications, General               | 70                | 79           | 86           | 70           | 76           | 69           | 68           | 77           | 81           | 74           | 62           |
| Communications, Other                 | 72                | 98           | 112          | 84           | 77           | 61           | 62           | 89           | 74           | 50           | 69           |
| <b>OTHER PROFESSIONAL FIELDS</b>      | <b>812</b>        | <b>766</b>   | <b>858</b>   | <b>836</b>   | <b>880</b>   | <b>867</b>   | <b>891</b>   | <b>931</b>   | <b>774</b>   | <b>770</b>   | <b>721</b>   |
| Architectural Environmental Design    | 31                | 43           | 41           | 67           | 60           | 54           | 67           | 55           | 61           | 65           | 51           |
| Home Economics                        | 58                | 55           | 74           | 29           | 58           | 57           | 31           | 31           | 28           | 35           | 17           |
| Law                                   | 33                | 26           | 34           | 23           | 20           | 29           | 33           | 37           | 26           | 27           | 31           |
| Library Science                       | 57                | 60           | 42           | 52           | 51           | 70           | 42           | 47           | 49           | 40           | 34           |
| Parks/Recreation/Leisure/Fitness      | -                 | -            | -            | -            | -            | 44           | 37           | 54           | 29           | 24           | 36           |
| Public Administration                 | 92                | 97           | 88           | 107          | 108          | 117          | 135          | 128          | 104          | 95           | 105          |
| Social Work                           | 241               | 206          | 246          | 240          | 248          | 237          | 272          | 303          | 256          | 247          | 236          |
| Theology/Religious Education          | 251               | 232          | 271          | 273          | 292          | 243          | 262          | 273          | 213          | 177          | 160          |
| Professional Fields, General          | 2                 | 0            | 3            | 3            | 1            | 1            | 1            | 1            | 2            | 4            | 0            |
| Professional Fields, Other            | 47                | 47           | 59           | 42           | 42           | 15           | 11           | 2            | 6            | 56           | 51           |
| <b>OTHER/UNKNOWN FIELDS</b>           | <b>50</b>         | <b>54</b>    | <b>67</b>    | <b>71</b>    | <b>40</b>    | <b>27</b>    | <b>41</b>    | <b>26</b>    | <b>39</b>    | <b>131</b>   | <b>94</b>    |

#Includes mathematics and computer sciences. \*Total includes 17 respondents with missing data for doctoral field. \*\*Includes 20 respondents with missing data for doctoral field.

NOTE: Dash (-) indicates that the field was not on the questionnaire's Specialties List that year. Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-2a. Number of doctorate recipients, by gender, race/ethnicity, and citizenship, 1978,1983, 1988-1998 (Total all doctorates)

|                                   | Year of Doctorate |        |        |        |        |        |        |        |        |        |        |        |        |
|-----------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                   | 1978              | 1983   | 1988   | 1989   | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 1996   | 1997   | 1998   |
| <b>TOTAL MEN AND WOMEN*</b>       | 30,875            | 31,281 | 33,500 | 34,327 | 36,067 | 37,534 | 38,890 | 39,801 | 41,034 | 41,743 | 42,414 | 42,555 | 42,683 |
| U.S. Citizen                      | 25,291            | 24,360 | 23,290 | 23,401 | 24,905 | 25,573 | 26,010 | 26,449 | 27,147 | 27,740 | 27,741 | 27,934 | 28,218 |
| Permanent Visa                    | 1,344             | 1,274  | 1,622  | 1,626  | 1,698  | 1,857  | 1,980  | 2,259  | 3,747  | 4,319  | 3,765  | 2,928  | 2,696  |
| Temporary Visa                    | 3,421             | 4,498  | 6,195  | 6,648  | 8,093  | 9,311  | 9,953  | 9,932  | 9,406  | 8,810  | 9,610  | 8,478  | 8,642  |
| Unknown Citizenship               | 819               | 1,149  | 2,393  | 2,652  | 1,371  | 793    | 947    | 1,161  | 734    | 874    | 1,298  | 3,215  | 3,127  |
| <b>Total Known Race/Ethnicity</b> | 28,451            | 29,397 | 30,354 | 30,955 | 33,878 | 35,780 | 37,193 | 38,284 | 39,834 | 40,330 | 40,636 | 38,847 | 39,293 |
| U.S. Citizen                      | 23,778            | 23,740 | 22,907 | 23,025 | 24,531 | 25,085 | 25,657 | 26,217 | 26,893 | 27,437 | 27,398 | 26,880 | 27,352 |
| Permanent Visa                    | 1,313             | 1,248  | 1,545  | 1,564  | 1,637  | 1,796  | 1,906  | 2,225  | 3,699  | 4,278  | 3,733  | 2,867  | 2,607  |
| Temporary Visa                    | 3,246             | 4,253  | 5,840  | 6,297  | 7,557  | 8,788  | 9,535  | 9,675  | 9,114  | 8,544  | 9,363  | 8,251  | 8,371  |
| Unknown Citizenship               | 114               | 156    | 62     | 69     | 153    | 111    | 95     | 167    | 128    | 71     | 142    | 849    | 963    |
| <b>American Indian†</b>           | 61                | 82     | 94     | 94     | 98     | 132    | 152    | 121    | 146    | 149    | 189    | 166    | 189    |
| U.S. Citizen                      | 60                | 81     | 94     | 94     | 97     | 130    | 149    | 120    | 143    | 149    | 186    | 166    | 189    |
| Permanent Visa★                   | 0                 | 1      | 0      | 0      | 0      | 2      | 0      | 0      | 0      | 0      | 1      | 0      | 0      |
| Temporary Visa★                   | 1                 | 0      | 0      | 0      | 1      | 0      | 2      | 1      | 3      | 0      | 2      | 0      | 0      |
| Unknown Citizenship               | 0                 | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Asian‡</b>                     | 2,394             | 3,123  | 4,780  | 5,192  | 6,293  | 7,528  | 8,290  | 8,671  | 9,367  | 9,708  | 9,821  | 9,004  | 8,575  |
| U.S. Citizen                      | 390               | 492    | 614    | 633    | 641    | 789    | 848    | 891    | 950    | 1,140  | 1,091  | 1,296  | 1,168  |
| Permanent Visa                    | 642               | 550    | 621    | 635    | 665    | 742    | 916    | 1,126  | 2,596  | 3,169  | 2,606  | 1,814  | 1,552  |
| Temporary Visa                    | 1,311             | 2,006  | 3,518  | 3,907  | 4,931  | 5,949  | 6,505  | 6,604  | 5,799  | 5,378  | 6,093  | 5,483  | 5,388  |
| Unknown Citizenship               | 51                | 75     | 27     | 17     | 56     | 48     | 21     | 50     | 22     | 21     | 31     | 411    | 467    |
| <b>Black</b>                      | 1,381             | 1,384  | 1,267  | 1,247  | 1,354  | 1,466  | 1,434  | 1,615  | 1,683  | 1,825  | 1,837  | 1,769  | 1,903  |
| U.S. Citizen                      | 1,031             | 922    | 818    | 822    | 901    | 1,010  | 971    | 1,111  | 1,101  | 1,309  | 1,315  | 1,336  | 1,467  |
| Permanent Visa                    | 73                | 83     | 152    | 141    | 149    | 156    | 145    | 169    | 178    | 168    | 142    | 139    | 119    |
| Temporary Visa                    | 269               | 365    | 291    | 273    | 291    | 293    | 311    | 322    | 389    | 337    | 364    | 250    | 254    |
| Unknown Citizenship               | 8                 | 14     | 6      | 11     | 13     | 7      | 7      | 13     | 15     | 11     | 16     | 44     | 63     |
| <b>Hispanic</b>                   | 861               | 969    | 1,048  | 1,063  | 1,228  | 1,319  | 1,402  | 1,431  | 1,534  | 1,541  | 1,623  | 1,686  | 1,866  |
| U.S. Citizen                      | 486               | 539    | 595    | 582    | 721    | 731    | 778    | 834    | 884    | 919    | 950    | 1,047  | 1,190  |
| Permanent Visa                    | 67                | 69     | 98     | 112    | 116    | 136    | 131    | 139    | 146    | 142    | 155    | 136    | 121    |
| Temporary Visa                    | 293               | 342    | 349    | 363    | 386    | 446    | 482    | 454    | 502    | 472    | 512    | 436    | 490    |
| Unknown Citizenship               | 15                | 19     | 6      | 6      | 5      | 6      | 11     | 4      | 2      | 8      | 6      | 67     | 65     |
| <b>White</b>                      | 23,754            | 23,839 | 23,165 | 23,359 | 24,905 | 25,335 | 25,915 | 26,446 | 27,104 | 27,107 | 27,166 | 26,222 | 26,760 |
| U.S. Citizen                      | 21,811            | 21,706 | 20,786 | 20,894 | 22,171 | 22,425 | 22,911 | 23,261 | 23,815 | 23,920 | 23,856 | 23,035 | 23,338 |
| Permanent Visa                    | 531               | 545    | 674    | 676    | 707    | 760    | 714    | 791    | 779    | 799    | 829    | 778    | 815    |
| Temporary Visa                    | 1,372             | 1,540  | 1,682  | 1,754  | 1,948  | 2,100  | 2,235  | 2,294  | 2,421  | 2,357  | 2,392  | 2,082  | 2,239  |
| Unknown Citizenship               | 40                | 48     | 23     | 35     | 79     | 50     | 55     | 100    | 89     | 31     | 89     | 327    | 368    |
| <b>Unknown Race/Ethnicity</b>     | 2,424             | 1,884  | 3,146  | 3,372  | 2,189  | 1,754  | 1,697  | 1,517  | 1,200  | 1,413  | 1,778  | 3,708  | 3,390  |
| U.S. Citizen                      | 1,513             | 620    | 383    | 376    | 374    | 488    | 353    | 232    | 254    | 303    | 343    | 1,054  | 866    |
| Permanent Visa                    | 31                | 26     | 77     | 62     | 61     | 61     | 74     | 34     | 48     | 41     | 32     | 61     | 89     |
| Temporary Visa                    | 175               | 245    | 355    | 351    | 536    | 523    | 418    | 257    | 292    | 266    | 247    | 227    | 271    |
| Unknown Citizenship               | 705               | 993    | 2,331  | 2,583  | 1,218  | 682    | 852    | 994    | 606    | 803    | 1,156  | 2,366  | 2,164  |

★ In most cases, non-U.S. American Indians are citizens of Canada or of a Latin American country.

\*Total includes individuals who did not report sex.

†Includes Alaskan Native.

‡Includes Pacific Islander.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-2b. Doctorates: MEN

|                                   | Year of Doctorate |        |        |        |        |        |        |        |        |        |        |        |        |
|-----------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                   | 1978              | 1983   | 1988   | 1989   | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 1996   | 1997   | 1998   |
| <b>TOTAL MEN</b>                  | 22,553            | 20,748 | 21,680 | 21,814 | 22,960 | 23,525 | 24,235 | 24,382 | 25,058 | 25,158 | 25,267 | 24,944 | 24,653 |
| U.S. Citizen                      | 17,936            | 15,121 | 13,724 | 13,396 | 14,165 | 14,385 | 14,518 | 14,512 | 14,732 | 14,965 | 14,700 | 14,915 | 14,750 |
| Permanent Visa                    | 1,052             | 952    | 1,164  | 1,139  | 1,189  | 1,223  | 1,290  | 1,468  | 2,636  | 2,908  | 2,483  | 1,831  | 1,662  |
| Temporary Visa                    | 2,966             | 3,871  | 5,134  | 5,444  | 6,632  | 7,506  | 7,946  | 7,835  | 7,306  | 6,840  | 7,384  | 6,454  | 6,418  |
| Unknown Citizenship               | 599               | 804    | 1,658  | 1,835  | 974    | 411    | 481    | 567    | 384    | 445    | 700    | 1,744  | 1,823  |
| <b>Total Known Race/Ethnicity</b> | 20,747            | 19,376 | 19,410 | 19,404 | 21,338 | 22,353 | 23,164 | 23,529 | 24,319 | 24,300 | 24,228 | 22,975 | 22,689 |
| U.S. Citizen                      | 16,822            | 14,677 | 13,448 | 13,117 | 13,899 | 14,030 | 14,261 | 14,343 | 14,563 | 14,754 | 14,473 | 14,323 | 14,242 |
| Permanent Visa                    | 1,029             | 930    | 1,097  | 1,094  | 1,149  | 1,177  | 1,236  | 1,444  | 2,602  | 2,884  | 2,460  | 1,794  | 1,603  |
| Temporary Visa                    | 2,817             | 3,648  | 4,822  | 5,143  | 6,174  | 7,072  | 7,605  | 7,641  | 7,093  | 6,628  | 7,201  | 6,276  | 6,218  |
| Unknown Citizenship               | 79                | 121    | 43     | 50     | 116    | 74     | 62     | 101    | 61     | 34     | 94     | 582    | 626    |
| <b>American Indian†</b>           | 51                | 51     | 52     | 49     | 52     | 74     | 82     | 61     | 74     | 82     | 103    | 77     | 104    |
| U.S. Citizen                      | 50                | 50     | 52     | 49     | 52     | 74     | 82     | 60     | 71     | 82     | 102    | 77     | 104    |
| Permanent Visa★                   | 0                 | 1      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Temporary Visa★                   | 1                 | 0      | 0      | 0      | 0      | 0      | 0      | 1      | 3      | 0      | 1      | 0      | 0      |
| Unknown Citizenship               | 0                 | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Asian‡</b>                     | 1,972             | 2,541  | 3,845  | 4,163  | 5,030  | 5,872  | 6,417  | 6,603  | 7,060  | 7,105  | 7,200  | 6,422  | 6,032  |
| U.S. Citizen                      | 287               | 312    | 414    | 446    | 427    | 482    | 531    | 552    | 590    | 670    | 614    | 740    | 643    |
| Permanent Visa                    | 531               | 430    | 456    | 459    | 481    | 489    | 604    | 732    | 1,877  | 2,198  | 1,784  | 1,143  | 986    |
| Temporary Visa                    | 1,114             | 1,731  | 2,957  | 3,245  | 4,077  | 4,865  | 5,264  | 5,282  | 4,576  | 4,222  | 4,779  | 4,245  | 4,063  |
| Unknown Citizenship               | 40                | 68     | 18     | 13     | 45     | 36     | 18     | 37     | 17     | 15     | 23     | 294    | 340    |
| <b>Black</b>                      | 900               | 835    | 699    | 685    | 733    | 788    | 771    | 840    | 889    | 881    | 933    | 860    | 820    |
| U.S. Citizen                      | 582               | 413    | 317    | 328    | 351    | 421    | 396    | 441    | 411    | 490    | 535    | 524    | 520    |
| Permanent Visa                    | 65                | 73     | 126    | 125    | 128    | 131    | 123    | 138    | 142    | 125    | 106    | 108    | 87     |
| Temporary Visa                    | 251               | 341    | 251    | 222    | 243    | 232    | 246    | 251    | 329    | 261    | 286    | 194    | 174    |
| Unknown Citizenship               | 2                 | 8      | 5      | 10     | 11     | 4      | 6      | 10     | 7      | 5      | 6      | 34     | 39     |
| <b>Hispanic</b>                   | 649               | 635    | 678    | 662    | 760    | 806    | 860    | 874    | 866    | 911    | 931    | 976    | 1,055  |
| U.S. Citizen                      | 330               | 288    | 321    | 307    | 380    | 370    | 410    | 423    | 438    | 460    | 478    | 535    | 606    |
| Permanent Visa                    | 54                | 45     | 64     | 69     | 69     | 88     | 72     | 94     | 80     | 79     | 86     | 82     | 71     |
| Temporary Visa                    | 254               | 288    | 288    | 283    | 309    | 344    | 371    | 356    | 346    | 369    | 363    | 311    | 344    |
| Unknown Citizenship               | 11                | 14     | 5      | 3      | 2      | 4      | 7      | 1      | 2      | 3      | 4      | 48     | 34     |
| <b>White</b>                      | 17,175            | 15,314 | 14,136 | 13,845 | 14,763 | 14,813 | 15,034 | 15,151 | 15,430 | 15,321 | 15,061 | 14,640 | 14,678 |
| U.S. Citizen                      | 15,573            | 13,614 | 12,344 | 11,987 | 12,689 | 12,683 | 12,842 | 12,867 | 13,053 | 13,052 | 12,744 | 12,447 | 12,369 |
| Permanent Visa                    | 379               | 381    | 451    | 441    | 471    | 469    | 437    | 480    | 503    | 482    | 484    | 461    | 459    |
| Temporary Visa                    | 1,197             | 1,288  | 1,326  | 1,393  | 1,545  | 1,631  | 1,724  | 1,751  | 1,839  | 1,776  | 1,772  | 1,526  | 1,637  |
| Unknown Citizenship               | 26                | 31     | 15     | 24     | 58     | 30     | 31     | 53     | 35     | 11     | 61     | 206    | 213    |
| <b>Unknown Race/Ethnicity</b>     | 1,806             | 1,372  | 2,270  | 2,410  | 1,622  | 1,172  | 1,071  | 853    | 739    | 858    | 1,039  | 1,969  | 1,964  |
| U.S. Citizen                      | 1,114             | 444    | 276    | 279    | 266    | 355    | 257    | 169    | 169    | 211    | 227    | 592    | 508    |
| Permanent Visa                    | 23                | 22     | 67     | 45     | 40     | 46     | 54     | 24     | 34     | 24     | 23     | 37     | 59     |
| Temporary Visa                    | 149               | 223    | 312    | 301    | 458    | 434    | 341    | 194    | 213    | 212    | 183    | 178    | 200    |
| Unknown Citizenship               | 520               | 683    | 1,615  | 1,785  | 858    | 337    | 419    | 466    | 323    | 411    | 606    | 1,162  | 1,197  |

★ In most cases, non-U.S. American Indians are citizens of Canada or of a Latin American country.

† Includes Alaskan Native.

‡ Includes Pacific Islander.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-2c. Doctorates: WOMEN

|                                   | Year of Doctorate |        |        |        |        |        |        |        |        |        |        |        |        |
|-----------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                   | 1978              | 1983   | 1988   | 1989   | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 1996   | 1997   | 1998   |
| <b>TOTAL WOMEN</b>                | 8,322             | 10,533 | 11,819 | 12,513 | 13,106 | 13,873 | 14,436 | 15,122 | 15,819 | 16,414 | 16,945 | 17,251 | 17,856 |
| U.S. Citizen                      | 7,355             | 9,239  | 9,566  | 10,005 | 10,740 | 11,185 | 11,491 | 11,932 | 12,412 | 12,773 | 13,041 | 12,990 | 13,452 |
| Permanent Visa                    | 292               | 322    | 458    | 487    | 508    | 633    | 687    | 788    | 1,110  | 1,410  | 1,282  | 1,096  | 1,018  |
| Temporary Visa                    | 455               | 627    | 1,061  | 1,204  | 1,461  | 1,794  | 1,990  | 2,069  | 2,076  | 1,952  | 2,215  | 2,015  | 2,212  |
| Unknown Citizenship               | 220               | 345    | 734    | 817    | 397    | 261    | 268    | 333    | 221    | 279    | 407    | 1,150  | 1,174  |
| <b>Total Known Race/Ethnicity</b> | 7,704             | 10,021 | 10,944 | 11,551 | 12,539 | 13,417 | 14,016 | 14,736 | 15,500 | 16,022 | 16,403 | 15,859 | 16,579 |
| U.S. Citizen                      | 6,956             | 9,063  | 9,459  | 9,908  | 10,632 | 11,053 | 11,396 | 11,872 | 12,327 | 12,683 | 12,925 | 12,554 | 13,107 |
| Permanent Visa                    | 284               | 318    | 448    | 470    | 487    | 619    | 669    | 779    | 1,096  | 1,393  | 1,273  | 1,072  | 996    |
| Temporary Visa                    | 429               | 605    | 1,018  | 1,154  | 1,383  | 1,708  | 1,920  | 2,021  | 2,013  | 1,910  | 2,158  | 1,966  | 2,142  |
| Unknown Citizenship               | 35                | 35     | 19     | 19     | 37     | 37     | 31     | 64     | 64     | 36     | 47     | 267    | 334    |
| <b>American Indian†</b>           | 10                | 31     | 42     | 45     | 46     | 58     | 70     | 60     | 72     | 67     | 86     | 89     | 85     |
| U.S. Citizen                      | 10                | 31     | 42     | 45     | 45     | 56     | 67     | 60     | 72     | 67     | 84     | 89     | 85     |
| Permanent Visa★                   | 0                 | 0      | 0      | 0      | 0      | 2      | 0      | 0      | 0      | 0      | 1      | 0      | 0      |
| Temporary Visa★                   | 0                 | 0      | 0      | 0      | 1      | 0      | 2      | 0      | 0      | 0      | 1      | 0      | 0      |
| Unknown Citizenship               | 0                 | 0      | 0      | 0      | 0      | 0      | 1      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Asian‡</b>                     | 422               | 582    | 935    | 1,029  | 1,262  | 1,648  | 1,862  | 2,054  | 2,297  | 2,596  | 2,616  | 2,575  | 2,527  |
| U.S. Citizen                      | 103               | 180    | 200    | 187    | 214    | 306    | 317    | 338    | 359    | 470    | 477    | 555    | 524    |
| Permanent Visa                    | 111               | 120    | 165    | 176    | 183    | 253    | 311    | 392    | 718    | 970    | 822    | 671    | 559    |
| Temporary Visa                    | 197               | 275    | 561    | 662    | 854    | 1,077  | 1,231  | 1,312  | 1,217  | 1,150  | 1,310  | 1,232  | 1,318  |
| Unknown Citizenship               | 11                | 7      | 9      | 4      | 11     | 12     | 3      | 12     | 3      | 6      | 7      | 117    | 126    |
| <b>Black</b>                      | 481               | 549    | 568    | 562    | 621    | 678    | 663    | 773    | 792    | 944    | 904    | 909    | 1,081  |
| U.S. Citizen                      | 449               | 509    | 501    | 494    | 550    | 589    | 575    | 670    | 690    | 819    | 780    | 812    | 947    |
| Permanent Visa                    | 8                 | 10     | 26     | 16     | 21     | 25     | 22     | 31     | 36     | 43     | 36     | 31     | 31     |
| Temporary Visa                    | 18                | 24     | 40     | 51     | 48     | 61     | 65     | 70     | 59     | 76     | 78     | 56     | 80     |
| Unknown Citizenship               | 6                 | 6      | 1      | 1      | 2      | 3      | 1      | 2      | 7      | 6      | 10     | 10     | 23     |
| <b>Hispanic</b>                   | 212               | 334    | 370    | 401    | 468    | 513    | 542    | 556    | 668    | 630    | 692    | 710    | 809    |
| U.S. Citizen                      | 156               | 251    | 274    | 275    | 341    | 361    | 368    | 411    | 446    | 459    | 472    | 512    | 583    |
| Permanent Visa                    | 13                | 24     | 34     | 43     | 47     | 48     | 59     | 45     | 66     | 63     | 69     | 54     | 50     |
| Temporary Visa                    | 39                | 54     | 61     | 80     | 77     | 102    | 111    | 97     | 156    | 103    | 149    | 125    | 145    |
| Unknown Citizenship               | 4                 | 5      | 1      | 3      | 3      | 2      | 4      | 3      | 0      | 5      | 2      | 19     | 31     |
| <b>White</b>                      | 6,579             | 8,525  | 9,029  | 9,514  | 10,142 | 10,520 | 10,879 | 11,293 | 11,671 | 11,785 | 12,105 | 11,576 | 12,077 |
| U.S. Citizen                      | 6,238             | 8,092  | 8,442  | 8,907  | 9,482  | 9,741  | 10,069 | 10,393 | 10,760 | 10,868 | 11,112 | 10,586 | 10,968 |
| Permanent Visa                    | 152               | 164    | 223    | 235    | 236    | 291    | 277    | 311    | 276    | 317    | 345    | 316    | 356    |
| Temporary Visa                    | 175               | 252    | 356    | 361    | 403    | 468    | 511    | 542    | 581    | 581    | 620    | 553    | 599    |
| Unknown Citizenship               | 14                | 17     | 8      | 11     | 21     | 20     | 22     | 47     | 54     | 19     | 28     | 121    | 154    |
| <b>Unknown Race/Ethnicity</b>     | 618               | 512    | 875    | 962    | 567    | 456    | 420    | 386    | 319    | 392    | 542    | 1,392  | 1,277  |
| U.S. Citizen                      | 399               | 176    | 107    | 97     | 108    | 132    | 95     | 60     | 85     | 90     | 116    | 436    | 345    |
| Permanent Visa                    | 8                 | 4      | 10     | 17     | 21     | 14     | 18     | 9      | 14     | 17     | 9      | 24     | 22     |
| Temporary Visa                    | 26                | 22     | 43     | 50     | 78     | 86     | 70     | 48     | 63     | 42     | 57     | 49     | 70     |
| Unknown Citizenship               | 185               | 310    | 715    | 798    | 360    | 224    | 237    | 269    | 157    | 243    | 360    | 883    | 840    |

★In most cases, non-U.S. American Indians are citizens of Canada or of a Latin American country.

†Includes Alaskan Native.

‡Includes Pacific Islander.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

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## APPENDIX C: Technical Notes

### I. Survey Response Rates

**SURVEY RESPONSE RATES\***

| Year | Self-Report<br>Rate | Year | Self-Report<br>Rate |
|------|---------------------|------|---------------------|
| 1967 | 97.3                | 1983 | 95.5                |
| 1968 | 97.6                | 1984 | 95.1                |
| 1969 | 96.6                | 1985 | 94.8                |
| 1970 | 98.1                | 1986 | 93.5                |
| 1971 | 97.5                | 1987 | 93.1                |
| 1972 | 97.3                | 1988 | 92.9                |
| 1973 | 97.5                | 1989 | 92.3                |
| 1974 | 94.2                | 1990 | 93.6                |
| 1975 | 97.3                | 1991 | 94.6                |
| 1976 | 97.2                | 1992 | 95.1                |
| 1977 | 96.6                | 1993 | 94.7                |
| 1978 | 96.3                | 1994 | 94.6                |
| 1979 | 96.4                | 1995 | 94.1                |
| 1980 | 96.2                | 1996 | 92.8                |
| 1981 | 95.7                | 1997 | 91.5                |
| 1982 | 95.3                | 1998 | 91.5                |

\* The rates for 1967-97 reflect late responses. The rate for 1998 may increase slightly in the next year if additional questionnaires are received after survey closure. Self-report rates for 1980-98 are determined from the "source of response" indicator in the doctorate records. Because this indicator was not coded prior to 1980, survey forms for 1965-79 are assumed to be self-reported if "month signed" or "marital status" is present. "Marital status" is not available from sources other than the doctorate recipient.

As shown in the table above, 91.5 percent of 1998 U.S. doctorate recipients completed survey forms. This percentage is what has been referred to as the "self-report" rate. For the remaining doctorate recipients, "skeleton" records were created using basic information obtained from doctorate-granting institutions or from commencement programs. This skeleton information includes Ph.D. institution, Ph.D. field, Ph.D. year, and sex of Ph.D. recipient. It should be noted that the sex variable was not always available, even for survey respondents. Every effort was made to obtain this information for as many respondents as possible, but for a small percentage, this could not be done with confidence. Thus, you will notice that there are missing data for many of the tabulations involving sex in this year's report. Prior to 1997, whenever sex was missing, the data were assigned to "male." In 1997, it was decided to discontinue this practice. The tabulations involving sex for 1997 and 1998 exclude missing cases except where noted otherwise.

Wherever possible this report includes data from all Ph.D. records whether complete or skeletal; thus the reported total number of Ph.D. recipients for 1998 (42,683) includes both respondents and non-respondents. It should also be noted that, in keeping with the practice of earlier data collection cycles, counts for previous years were corrected by the addition of data from surveys received after the close of data collection for a given year. In this year's cycle, this will particularly affect the 1997 data and analysis because, in addition to the changes engendered by adding data from questionnaires for 1997 doctorate recipients that arrived after the 1997 closing date, 150 cases originally coded as 1997 doctorate recipients were determined actually to have received their doctorates in the 1998 academic year and were recoded accordingly. This has an effect not only on the overall count of doctorate recipients for 1997 but on the response rates and analyses of individual variables, most notably on the variable PHDFIELD, which indexes field of doctorate. The reader will therefore note differences in the values reported for 1997 in the trend tables of this year's summary report compared to the *1997 Summary Report*. For comparison, both the original and revised response rates for 1997 are included in the table of response rates shown below.

## **II. Item Response Rates**

The table on the following pages shows the response rates for each item in the Survey of Earned Doctorates for 1988 through 1998. The numbers and percentages shown in the tables and figures in the body of the summary report are based only on the number of doctorate recipients who responded to the applicable survey items. For cross-tabulations, the response rate for a given tabulation will be no greater than the lowest response rate for the items involved in the tabulation.

For additional technical information on the Survey of Earned Doctorates, please contact

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## II. ITEM RESPONSE RATES, 1988-1998

| Variable Name         | Field                              | 1988   | 1989   | 1990   | 1991   | 1992   | 1993   | 1994   | 1995   | 1996   | 1997 (Prelim) | 1997 (Adjusted) | 1998 (Prelim) |
|-----------------------|------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------------|-----------------|---------------|
| PHDFICE               | Ph.D. FICE Code                    | 100.0  | 100.0  | 100.0  | 100.0  | 100.0  | 100.0  | 100.0  | 100.0  | 100.0  | NA            | NA              | NA            |
| RACE <sup>a</sup>     | Race/Ethnic Group (Recoded)        | 90.6   | 90.2   | 93.9   | 95.3   | 95.6   | 96.2   | 97.1   | 96.6   | 95.8   | 92.5          | 92.9            | 93.3          |
| PHDENTRY              | First Grad. Year in Ph.D. Instn.   | NA     | NA     | NA     | NA     | NA     | 86.9   | 86.7   | 86.5   | 85.5   | 78.4          | 78.3            | 83.3          |
| SRCE1ED <sup>b</sup>  | Primary Source of Support (Edited) | 83.3   | 82.5   | 78.1   | 77.6   | 69.7   | 66.2   | 72.4   | 74.9   | 87.9   | 87.2          | 87.1            | 88.1          |
| PDWK1ED <sup>c</sup>  | Primary Work Activity (Edited)     | 61.4   | 61.4   | 56.2   | 55.9   | 55.7   | 54.7   | 56.3   | 56.6   | 60.8   | 60.0          | 59.9            | 60.8          |
|                       |                                    | (92.6) | (92.4) | (83.8) | (83.8) | (83.5) | (83.3) | (86.1) | (86.8) | (93.3) | (94.4)        | (92.8)          | (93.0)        |
| PDWK2ED <sup>c</sup>  | Secondary Work Activity (Edited)   | 38.9   | 39.2   | 39.5   | 39.5   | 37.4   | 36.7   | 38.2   | 38.4   | 48.5   | 51.4          | 51.3            | 52.0          |
|                       |                                    | (58.6) | (58.9) | (58.9) | (59.3) | (56.0) | (55.8) | (58.4) | (58.8) | (74.4) | (80.9)        | (79.6)          | (79.7)        |
| EDFATHER              | Father's Education                 | 88.8   | 88.3   | 90.8   | 92.3   | 93.1   | 92.7   | 92.7   | 92.3   | 91.4   | 88.8          | 88.7            | 89.4          |
| EDMOTHER              | Mother's Education                 | 88.2   | 87.5   | 90.5   | 92.2   | 93.0   | 92.6   | 92.5   | 92.1   | 91.6   | 89.1          | 89.0            | 89.6          |
| BIRTHYR               | Year of Birth                      | 95.8   | 92.4   | 96.6   | 98.2   | 97.7   | 97.3   | 98.2   | 97.5   | 96.8   | 92.5          | 92.8            | 92.5          |
| BIRTHPL               | Place of Birth                     | 92.5   | 91.8   | 92.1   | 94.1   | 95.1   | 94.9   | 94.8   | 94.5   | 93.0   | 89.9          | 89.8            | 90.5          |
| SEX                   | Sex                                | 100.0  | 100.0  | 100.0  | 99.6   | 99.4   | 99.2   | 99.6   | 99.6   | 99.5   | 99.1          | 99.2            | 99.6          |
| MARITAL               | Marital Status                     | 91.6   | 91.0   | 91.7   | 91.5   | 92.0   | 91.6   | 91.5   | 91.0   | 91.6   | 88.6          | 88.5            | 89.9          |
| DEPENDS               | Number of Dependents               | 85.8   | 85.8   | 90.0   | 89.5   | 89.8   | 89.8   | 89.7   | 89.4   | 89.4   | 87.6          | 87.5            | 88.4          |
| CITIZ                 | Citizenship                        | 92.9   | 92.3   | 96.2   | 97.9   | 97.6   | 97.1   | 98.2   | 97.9   | 96.9   | 91.5          | 92.4            | 92.7          |
| CNTRYCIT <sup>c</sup> | Country of Citizenship             | 20.8   | 21.7   | 26.4   | 29.2   | 30.3   | 30.2   | 31.9   | 31.3   | 31.3   | 25.7          | 25.6            | 26.3          |
|                       |                                    | (89.3) | (90.1) | (97.2) | (98.0) | (98.5) | (98.6) | (99.3) | (99.4) | (98.5) | (96.5)        | (95.3)          | (99.0)        |

NOTE: NA = not available.

<sup>a</sup> The percentage represents the race/ethnic groups standardly reported by the Doctorate Data Project; multiple and "other" races are excluded.

<sup>b</sup> As of FY 1996, the percentage includes recipients who said they had no primary source of support.

<sup>c</sup> The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral employment.

## II. ITEM RESPONSE RATES, 1988-1998 continued

| Variable Name         | Field                                          | 1988 | 1989 | 1990 | 1991 | 1992 | 1993             | 1994             | 1995             | 1996              | 1997 (Prelim)    | 1997 (Adjusted)  | 1998 (Prelim)    |
|-----------------------|------------------------------------------------|------|------|------|------|------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|
| RACERAW <sup>a</sup>  | Race/Ethnic Group                              | 90.6 | 90.2 | 93.9 | 95.3 | 95.6 | 96.2             | 97.1             | 96.6             | 95.8              | 92.5             | 92.8             | 93.3             |
| HANDICAP <sup>b</sup> | Handicap Indic. (incl. "No" from 1989-present) | 1.7  | 91.0 | 92.4 | 93.4 | 93.9 | 93.6             | 93.7             | 93.3             | 91.7              | 89.4             | 89.3             | 97.9             |
| HSPLACE               | Place of High School                           | 90.6 | 89.8 | 90.8 | 93.5 | 94.5 | 94.0             | 93.9             | 93.5             | 92.1              | 89.5             | 89.4             | 90.5             |
| HSYEAR                | Year of H.S. Graduation                        | 89.2 | 88.5 | 90.5 | 90.9 | 92.1 | 92.1             | 91.7             | 91.6             | 90.4              | 88.3             | 88.3             | 93.8             |
| JRCOLL                | Jr. Coll. Indic. (incl. "No")                  | 90.2 | 89.1 | 90.8 | 92.0 | 92.7 | 92.9             | 92.5             | 92.3             | 90.5              | 90.8             | 90.7             | 99.9             |
| REGNURSE <sup>c</sup> | Registered Nurse                               | 0.2  | 0.2  | 0.2  | 0.2  | 0.1  | 0.1              | 0.1              | 0.1              | 0.1               | 0.1              | 0.1              | 0.1              |
| CEPLACE               | Place of College Entrance                      | 90.5 | 90.3 | 90.8 | 91.8 | 92.7 | 92.8             | 92.3             | 92.1             | 90.5              | 81.9             | 81.8             | 90.1             |
| CEYEAR                | Year of College Entrance                       | 89.7 | 89.3 | 90.1 | 91.3 | 92.2 | 91.7             | 91.5             | 91.2             | 89.0              | 82.0             | 81.9             | 88.4             |
| BAINST                | Baccalaureate Institution                      | 96.1 | 94.4 | 95.7 | 96.5 | 96.4 | 96.3             | 96.6             | 95.8             | 94.9              | 88.6             | 89.0             | 90.4             |
| BAFIELD               | Field of Baccalaureate                         | 90.6 | 90.3 | 91.0 | 92.3 | 92.4 | 91.9             | 91.6             | 90.9             | 89.2              | 82.1             | 82.0             | 83.9             |
| BAYEAR                | Year of Baccalaureate                          | 95.4 | 93.2 | 95.0 | 95.5 | 96.0 | 95.7             | 96.2             | 95.5             | 94.7              | 87.7             | 88.1             | 89.9             |
| BANONE <sup>d</sup>   | No Baccalaureate/Master's                      | 0.7  | 0.6  | 1.1  | 1.1  | 0.9  | 8.6 <sup>d</sup> | 9.1 <sup>d</sup> | 9.7 <sup>d</sup> | 11.4 <sup>d</sup> | 6.9 <sup>d</sup> | 6.9 <sup>d</sup> | 8.1 <sup>d</sup> |
| GEYEAR                | Year of Graduate Entrance                      | 88.5 | 88.2 | 86.6 | 89.4 | 89.5 | 88.6             | 88.2             | 87.4             | 85.7              | 76.7             | 76.6             | 81.1             |
| MAINST                | Master's Institution                           | 78.3 | 77.5 | 78.2 | 78.4 | 79.0 | 78.6             | 78.9             | 78.0             | 77.2              | 72.0             | 71.9             | 72.8             |
| MAFIELD               | Field of Master's                              | 75.3 | 74.6 | 75.5 | 76.3 | 77.0 | 76.1             | 76.1             | 75.3             | 74.5              | 68.3             | 68.2             | 70.1             |
| MAYEAR                | Year of Master's                               | 76.7 | 75.9 | 76.7 | 77.1 | 77.7 | 77.0             | 77.1             | 76.3             | 75.5              | 70.7             | 70.6             | 72.5             |

NOTE: NA = not available.

<sup>a</sup> The percentage represents the race/ethnic groups standardly reported by the Doctorate Data Project; multiple and "other" races are excluded.

<sup>b</sup> The percentages from 1985-1988 represent the numbers of Ph.D.s with handicaps. Beginning in 1989, the response rates include Ph.D.s who reported "no" handicap. Note: The definition of "handicapped" was much more restrictive in 1990 and 1991.

<sup>c</sup> Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%.

<sup>d</sup> Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%. Note; "No Baccalaureate/Master's" represents only "no baccalaureate" from 1983 to 1992. Beginning in 1993, it indicates that the Ph.D. held no baccalaureate and/or master's degree.

## II. ITEM RESPONSE RATES, 1988-1998 continued

| Variable              |                             | 1988  | 1989  | 1990  | 1991  | 1992              | 1993  | 1994  | 1995  | 1996              | 1997<br>(Prelim) | 1997<br>(Adjusted) | 1998<br>(Prelim) |
|-----------------------|-----------------------------|-------|-------|-------|-------|-------------------|-------|-------|-------|-------------------|------------------|--------------------|------------------|
| Name                  | Field                       |       |       |       |       |                   |       |       |       |                   |                  |                    |                  |
| PROFDEG <sup>a</sup>  | Type Professional Doctorate | 1.1   | 1.3   | 1.3   | 1.6   | 1.6               | 1.6   | 1.7   | 1.8   | 1.9               | 1.9              | 1.9                | 1.2              |
| PROFYEAR <sup>a</sup> | Year Professional Doctorate | 1.1   | 1.3   | 1.3   | 1.6   | 1.5               | 1.6   | 1.7   | 1.8   | 1.9               | 1.7              | 1.8                | 2.8              |
| PHDINST               | Doctorate Institution       | 100.0 | 100.0 | 100.0 | 100.0 | 100.0             | 100.0 | 100.0 | 100.0 | 100.0             | 100.0            | 100.0              | 100.0            |
| PHDFIELD              | Field of Doctorate          | 100.0 | 100.0 | 100.0 | 100.0 | 100.0             | 100.0 | 100.0 | 100.0 | 100.0             | 98.5             | 100.0              | 100.0            |
| PHDCY                 | Calendar Year of Doctorate  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0             | 100.0 | 100.0 | 100.0 | 100.0             | 100.0            | 100.0              | 100.0            |
| PHDMONTH              | Month of Doctorate          | 100.0 | 100.0 | 100.0 | 100.0 | 100.0             | 100.0 | 100.0 | 100.0 | 100.0             | 100.0            | 100.0              | 100.0            |
| PHDFY                 | Fiscal Year of Doctorate    | 100.0 | 100.0 | 100.0 | 100.0 | 100.0             | 100.0 | 100.0 | 100.0 | 100.0             | 100.0            | 100.0              | 100.0            |
| PHDTYPE1              | Type of Doctorate           | 100.0 | 100.0 | 100.0 | 100.0 | 100.0             | 100.0 | 100.0 | 100.0 | 100.0             | 95.0             | 100.0              | 100.0            |
| PHDTYPE2 <sup>a</sup> | Applied Research Doctorate  | 3.1   | 2.8   | 2.6   | 2.3   | 2.4               | 2.4   | 2.7   | 2.5   | 2.2               | 0.9              | 0.9                | 1.0              |
| TOCEBA <sup>a</sup>   | Time Out CE-BA              | 88.3  | 88.0  | 88.5  | 89.7  | 90.5              | 89.7  | 89.7  | 88.9  | 86.7              | 82.1             | 82.0               | 82.6             |
| TOBAGE <sup>a</sup>   | Time Out BA-GE              | 88.6  | 88.3  | 86.6  | 89.5  | 89.6              | 88.6  | 88.2  | 87.4  | 85.7              | 76.7             | 76.6               | 81.1             |
| TOGEMA <sup>a</sup>   | Time Out GE-MA              | 72.4  | 71.7  | 72.2  | 73.3  | 74.0              | 73.1  | 73.1  | 72.0  | 70.4              | 61.3             | 61.2               | 63.6             |
| TOMAPHD <sup>a</sup>  | Time Out MA-Ph.D.           | 71.4  | 70.1  | 65.2  | 69.9  | 71.1              | 69.9  | 70.0  | 69.0  | 68.1              | 67.5             | 67.5               | 65.1             |
| TOGEPHD               | Time Out GE-Ph.D.           | 85.7  | 84.7  | 77.4  | 84.0  | 84.5              | 83.1  | 82.5  | 81.8  | 80.2              | 75.9             | 75.8               | 74.9             |
| TICEPHD               | Time In CE-Ph.D.            | 85.2  | 84.1  | 76.7  | 83.4  | 84.3              | 83.0  | 82.9  | 82.4  | 80.8              | 75.1             | 75.0               | 78.0             |
| YEARSFT               | Full-time enrollment        | 71.2  | 69.3  | 83.1  | 73.9  | 75.7              | 75.7  | 75.2  | 74.5  | 77.1              | 82.1             | 82.0               | 89.4             |
| YEARSPT               | Part-time enrollment        | 71.2  | 69.3  | NA    | NA    | NA                | NA    | NA    | NA    | NA                | NA               | NA                 | NA               |
| YEARSOUT              | Not enrolled                | 71.2  | 69.3  | NA    | NA    | NA                | NA    | NA    | NA    | NA                | NA               | NA                 | NA               |
| PHDDISS <sup>b</sup>  | Field of Dissertation       | 91.0  | 89.8  | NA    | NA    | 65.0 <sup>b</sup> | 92.7  | 93.3  | 92.4  | 92.0              | 88.5             | 88.4               | 89.8             |
| SRCEPRIM <sup>c</sup> | Primary Source of Support   | 72.3  | 71.7  | 75.8  | 77.7  | 69.7              | 66.1  | 72.4  | 74.9  | 87.9 <sup>c</sup> | 87.2             | 87.1               | 88.2             |
| DEBTIND               | Debt Indicator (incl. "No") | 90.8  | 90.9  | 92.2  | 93.1  | 93.3              | 92.8  | 92.8  | 92.4  | 91.1              | NA               | NA                 | NA               |
| PRESTAT               | Predocctoral Status         | 91.2  | 90.7  | 92.4  | 93.5  | 93.5              | 93.1  | 92.9  | 92.5  | 91.7              | 87.6             | 87.5               | 89.7             |
| PDOCSTAT              | Postdoctoral Status         | 90.2  | 89.6  | 90.7  | 91.6  | 92.1              | 91.8  | 91.7  | 91.0  | 90.9              | 88.3             | 88.2               | 89.3             |
| PDOCPLAN              | Postdoctoral Plans          | 89.8  | 89.4  | 91.3  | 92.1  | 92.5              | 92.4  | 92.4  | 91.8  | 91.2              | 86.5             | 86.4               | 87.6             |

NOTE: NA = not available

<sup>a</sup> Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%.

<sup>b</sup> The percentage was low in 1992 because 28% of the Ph.D.s completed earlier survey forms that did not request field of dissertation.

<sup>c</sup> As of FY 1996, the percentage included recipients who said they had no primary source of support.

## II. ITEM RESPONSE RATES, 1988-1998 continued

| Variable Name         | Field                                  | 1988           | 1989           | 1990           | 1991           | 1992           | 1993           | 1994           | 1995           | 1996           | 1997 (Prelim)  | 1997 (Adjusted) | 1998 (Prelim)  |
|-----------------------|----------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|
| PDREASON              | Reason for Postdoctoral Appointment    | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA              | NA             |
| PDSTDFLD <sup>a</sup> | Postdoctoral Study Field               | 22.6<br>(95.0) | 21.9<br>(94.7) | 23.2<br>(95.2) | 24.4<br>(95.1) | 24.3<br>(93.4) | 25.1<br>(94.0) | 25.3<br>(93.8) | 25.0<br>(93.9) | 25.4<br>(97.4) | 25.4<br>(99.0) | 25.4<br>(99.0)  | 25.4<br>(96.0) |
| PDSTDSUP <sup>a</sup> | Sources of Study Support               | 22.3<br>(93.8) | 21.6<br>(93.6) | 22.4<br>(91.8) | 24.0<br>(93.4) | 24.2<br>(92.9) | 24.7<br>(92.4) | 25.1<br>(93.1) | 24.6<br>(92.5) | 24.7<br>(94.9) | 24.8<br>(99.9) | 24.5<br>(100.0) | 25.2<br>(95.8) |
| PDEMPLOY <sup>b</sup> | Type of Employer                       | 63.5<br>(95.7) | 63.9<br>(96.1) | 63.6<br>(94.9) | 63.3<br>(94.9) | 62.9<br>(94.3) | 61.4<br>(93.5) | 61.1<br>(93.5) | 60.9<br>(93.4) | 61.4<br>(94.2) | 59.8<br>(94.1) | 59.7<br>(92.7)  | 61.7<br>(94.4) |
| PDWKPRIM <sup>b</sup> | Primary Work Activity                  | 61.4<br>(92.6) | 61.4<br>(92.4) | 56.2<br>(83.8) | 55.9<br>(83.8) | 55.7<br>(83.5) | 54.7<br>(83.3) | 56.3<br>(86.1) | 56.6<br>(86.8) | 60.8<br>(93.3) | 60.1<br>(94.5) | 60.0<br>(93.0)  | 61.0<br>(93.2) |
| PDWKSEC <sup>b</sup>  | Secondary Work Activity                | 38.9<br>(58.6) | 39.2<br>(58.9) | 39.5<br>(58.9) | 39.6<br>(59.3) | 37.4<br>(56.0) | 36.7<br>(55.9) | 38.2<br>(58.4) | 38.4<br>(58.8) | 48.5<br>(74.4) | 49.4<br>(77.7) | 49.3<br>(76.4)  | 51.1<br>(76.7) |
| PDEMPFLD <sup>b</sup> | Field of Employment                    | 48.2<br>(72.7) | 47.9<br>(72.1) | 47.0<br>(70.2) | 47.3<br>(70.8) | 45.3<br>(68.0) | 44.0<br>(67.0) | 45.4<br>(69.4) | 45.7<br>(70.1) | 58.3<br>(89.6) | 59.1<br>(93.0) | 59.0<br>(91.5)  | 60.0<br>(91.9) |
| PDCONSID              | Postdoctoral Appointment Consideration | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA              | NA             |
| PDDECISN              | Decision Against Postdoc               | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA              | NA             |
| PDUSFOR               | Postdoctoral Location US or Foreign    | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | NA             | 90.8           | 90.7            | 90.1           |
| PDAFFIL               | Postdoctoral Affiliation               | 68.6           | 68.3           | 80.0           | 89.6           | 94.4           | 93.8           | 94.6           | 94.1           | 92.6           | NA             | NA              | NA             |

NOTE: NA = not available

<sup>a</sup> The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral study.

<sup>b</sup> The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral employment.

### III. Derived Variables

The following derived variables deserve further explanation.

#### Postdoctoral Plans to Stay in the United States

Starting in 1997, the planned postdoctoral location of doctorate recipients was coded in a new variable called PDLOC using FIPS codes for U.S. states and territories and countries. Values of PDLOC less than 100 indicate a postdoctoral location in the United States.

Also beginning in 1997, a dichotomous variable, PDUSFOR, was created to index whether the planned postdoctoral location reported by the respondent was in the United States or in a foreign location.

For years prior to 1997, this variable is based on PDAFFIL. The first character of PDAFFIL flags whether the respondent's planned postdoctoral location is in the United States; a numeric character in this position indicates a United States location. Non-numeric values in the first position of PDAFFIL (except "R") indicate non-U.S. locations. A value of "R" for PDAFFIL signifies the respondent's refusal to provide information.

For the interested user, the following SAS code produces "USPLAN" as an index of plans to stay in the United States following the doctorate using PDAFFIL1 (a variable created using the first character of PDAFFIL).

```
USPLAN=2; /* Outside the U.S. */  
if PDAFFIL1 in ("0","1","2","3","4","5","6","7","8","9")  
    then USPLAN=1; /* U.S. */  
if PDAFFIL1 eq "R" then USPLAN=.;  
if PDAFFIL1 eq " " then USPLAN=.;
```

#### Firm Postdoctoral Plans

Postdoctoral plans are coded using the values of PDOCSTAT, which indicate that the doctorate recipient's postdoctoral plans were definite at the time the survey was completed. That is, codes 0, 1, or A on PDOCSTAT indicate that the respondent had definite postdoctoral plans, whereas codes 2, 3, and 4 indicate that the respondent was still seeking to determine postdoctoral placement.

The following is the SAS code used to derive FIRMPLAN from PDOCSTAT :

```
if PDOCSTAT in ("0","1","A") then FIRMPLAN=1; /* Definite */  
if PDOCSTAT in ("2","3","4") FIRMPLAN=2; /* Seeking */  
if PDOCSTAT eq " " then FIRMPLAN=.;
```

## Firm Plans to Stay in the United States

This variable is derived from USPLAN and FIRMPLAN. A respondent is coded as having firm plans to stay in the United States if the reported postdoctoral location was in the United States and the reported postdoctoral plans were coded “definite.”

The following is the SAS code that creates the variable FIRMUS from USPLAN and FIRMPLAN as described above.

```
FIRMUS=2;  
if (USPLAN eq 1 and FIRMPLAN eq 1) then FIRMUS=1;  
if USPLAN eq . or FIRMPLAN eq . then FIRMUS=.;
```

## Race/Ethnicity

**Adjustments to numbers:** Readers should keep in mind that fluctuations in numbers for a racial/ethnic group reflect to some degree any upward or downward change in both overall survey response and response to the racial/ethnic item. Since 1990 response to race/ethnicity has shown great improvement — a result of new procedures for following up missing information. Race/ethnicity was not followed up prior to 1990.

All follow-up responses received before survey closure are included in the data presented in the summary report for that survey. Responses arriving after closure are included in the next year’s report. The extension of survey closure dates in the past four years has allowed most follow-up responses to be received in time to be included in the summary reports for those surveys. Postsurvey adjustments were greatest for 1990 and 1991 data, much less for 1992, and minimal for 1993. In 1994 response to the racial/ethnic item reached 97 percent by survey closure — the highest rate ever. Any postsurvey adjustments for 1998 data will be included in next year’s report, but they are expected to be very slight because of the extended closure. Updated numbers for all recent years appear in Appendix Table B-2 in this report.

**History of the racial/ethnic question:** Although this item was first introduced to the Survey of Earned Doctorates in 1973, over 25 percent of recipients in 1973 and about 13 percent in 1974 either completed earlier questionnaires or provided unusable responses. Since 1975 the racial/ethnic data have been more reliable, with response rates ranging from 90.1 to 97.1 percent (the latter in 1994). The information on race/ethnicity presented in this report is limited to the period of 1977-98.

The racial/ethnic question has undergone several revisions over the years. In 1977 it was modified to correspond to a standard question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in Federally sponsored surveys; and explanation of the effect of these changes is detailed on page 13 of *Summary Report 1977*. (Note: Changes in the OMB guidelines prompted the reclassification of persons having origins in the Indian subcontinent from the white category to the Asian category.) In 1980 the question was further revised in two ways: (1) the Hispanic

category was subdivided into Puerto Rican, Mexican American, and other Hispanic and (2) respondents were asked to check only one racial category. (Before 1980 doctorate recipients could check more than one category to indicate their race.) The item was modified again in 1982 to separate the questions on race and ethnicity. Since then, respondents have been asked to first check one of the four racial group categories (American Indian, Asian, black, or white) and then indicate whether or not they are Hispanic. In this report, doctorate recipients who reported Hispanic heritage are classified as Hispanic regardless of their racial designations; the remaining doctorate recipients are then counted in the respective racial groups. (Note: Doctorate recipients who checked the category "American Indian or Alaskan Native" are identified as "American Indian" in this report.)

## Time to Doctorate

**Total time to degree (TTD):** TTD measures the total elapsed time between the baccalaureate and the doctorate (including time not enrolled in school). TTD can be computed only for individuals whose baccalaureate year is known. Baccalaureate year is often obtained from commencement programs or doctorate institutions when not reported by the recipient. *Months are now included in the computation (see note below).*

**Registered time to degree (RTD):** RTD gauges the time in attendance at colleges and universities between receipt of the baccalaureate and the doctorate. Enrollment may include years of attendance not related to a recipient's doctoral program. RTD can only be computed for individuals who provided all years of college attendance after the baccalaureate. *Months are now included in the computation (see note below).*

**Note about medians:** The method of computing medians has been revised. Beginning with *Summary Report 1994*, months (of birth, baccalaureate, and doctorate) are included in the calculations whenever available; if months are missing, only years are used in the calculations. (However, medians are not computed for years prior to 1969 because doctorate month is unavailable for all doctorate recipients.) Medians presented in previous summary reports were based only on years. Some medians would be the same regardless of the method of computation, but the new method generally computes slightly different results. While differences are small (usually one- or two-tenths of a year), readers should consider these differences when comparing medians presented in the report with those in earlier reports.

## IV. Changes to the 1998 SED

### Marital Status

Beginning in the 1998 SED, response categories for the questionnaire item on marital status have been expanded from three to five choices. The table below illustrates this change.

| Old version (SED 1997 and earlier) |                              | New version (SED 1998 and later) |                                        |
|------------------------------------|------------------------------|----------------------------------|----------------------------------------|
| Code                               | Questionnaire selection      | Code                             | Questionnaire selection                |
| 0                                  | Single, never married        | 1                                | Married                                |
| 1                                  | Married                      | 2                                | Living in a marriage-like relationship |
| 2                                  | Separated, divorced, widowed | 3                                | Widowed                                |
|                                    |                              | 4                                | Separated/divorced                     |
|                                    |                              | 5                                | Never married                          |

Questionnaire response “Married” maps directly from the old version to the new version. This choice presents no problems of comparability across years. However, the category “2-Separated, divorced, widowed” from the previous questionnaire has been separated into two categories in the new version, “3-Widowed” and “4-Separated/divorced.” Also, the category “0-Single, never married” has been recoded as “5-Never married.”

### Source of Funding Variables (Questions A11, A12)

Before the 1998 SED, the source of funding variables, SRCE(A-M), SRCEPRIM, and SRCESEC, took 35 possible numeric values, indicating specific funding sources that supported the respondent’s graduate education. A number of these numeric codes keyed to specific Federal programs (e.g., Patricia Roberts Harris scholarships, NIH traineeships, etc.). The new code frame reduces the respondent’s available choices to 13 and presents options as broad categories of funding sources (e.g., "Federal government"), rather than specific programs (e.g., "NIH traineeship").

The number of closed-ended answer choices offered at Question A11 corresponds with the total number of sources of financial support variables recorded on the DRF. To make the analysis of these data easier, SRCE(A-M) were converted to Yes/No/Don’t Know questions, replacing numerical coding of specific college funding programs. Data users can perform straightforward frequencies on each source of funding variable, rather than running frequencies on 13 variables and summing the results to get the number of cases receiving funding from each of 35 sources.

To preserve consistency in coding over the two form types for 1998 SED, the coding system shown in the table below should be used to map the older code frame into the new code frame.



| Old version (SED 1997 and earlier) |                                         | New version (SED 1998 and later) |                            |
|------------------------------------|-----------------------------------------|----------------------------------|----------------------------|
| Code                               | Questionnaire selection                 | Code                             | Questionnaire selection    |
| 80                                 | Guaranteed Student Loan (Stafford Loan) | a.                               | Loans (from any source)    |
| 81                                 | Perkins Loan (formerly NDSL)            |                                  |                            |
| 89                                 | Other loan - specify                    |                                  |                            |
| 91                                 | Foreign (non-U.S.) Government           | b.                               | Foreign (non-U.S.) support |
| 12                                 | University fellowship                   | c.                               | Fellowship, scholarship    |
| 29                                 | Other HHS                               |                                  |                            |
| 33                                 | NSF Fellowship                          |                                  |                            |
| 40                                 | Patricia Roberts-Harris Fellowship      |                                  |                            |
| 44                                 | Title VI Foreign Language               |                                  |                            |
| 49                                 | Other Dept. of Education                |                                  |                            |
| 53                                 | USDA Fellowship                         |                                  |                            |
| 55                                 | NEH                                     |                                  |                            |
| 60                                 | Veterans Administration                 |                                  |                            |
| 61                                 | Fulbright Fellowship                    |                                  |                            |
| 69                                 | Other/Specify (Other Federal Sup.)      |                                  |                            |
| 70                                 | Ford Foundation                         |                                  |                            |
| 71                                 | Rockefeller Foundation                  |                                  |                            |
| 73                                 | Mellon Foundation                       |                                  |                            |
| 78                                 | Other Fellowship                        |                                  |                            |
|                                    |                                         | d.                               | Dissertation grant         |
| 10                                 | Teaching Assistantship                  | e.                               | Teaching assistantship     |
| 11                                 | Research Assistantship                  | f.                               | Research assistantship     |
| 22                                 | NIH                                     |                                  |                            |
| 32                                 | NSF                                     |                                  |                            |
| 52                                 | USDA                                    |                                  |                            |
| 62                                 | Other Federal Research Assistantship    |                                  |                            |
| 21                                 | NIH Traineeship/Fellowship              | g.                               | Traineeship                |
|                                    |                                         | h.                               | Internship or residency    |

| Old version (SED 1997 and earlier) |                                    | New version (SED 1998 and later) |                                                              |
|------------------------------------|------------------------------------|----------------------------------|--------------------------------------------------------------|
| Code                               | Questionnaire selection            | Code                             | Questionnaire selection                                      |
|                                    |                                    | i.                               | Personal savings                                             |
| 14                                 | College Work Study                 | j.                               | Other personal earnings during graduate school               |
| 01                                 | Own/Family Resources               |                                  |                                                              |
| 19                                 | Other/Specify (University-Related) |                                  |                                                              |
| 02                                 | Spouse's Earnings                  | k.                               | Spouse's, significant other's, or family earnings or savings |
| 03                                 | Family Contributions               |                                  |                                                              |
| 90                                 | Business/Employer                  | l.                               | Employer reimbursement/assistance                            |
| 92                                 | State Government                   | m.                               | Other specify                                                |
| 99                                 | Other Specify                      |                                  |                                                              |

In addition, the tabulations in this report further collapse the 13 new categories into 7 as follows.

| 1998 Summary Report Table Category                  | Raw Variables |
|-----------------------------------------------------|---------------|
| 1. Teaching Assistantships                          | SRCE-E        |
| 2. Research Assistantships/Traineeships/Internships | SRCE-F,G,H    |
| 3. Fellowships/Dissertation Grants                  | SRCE-C,D      |
| 4. Own Resources (loans + spouse + savings + work)  | SRCE-A,I,J,K  |
| 5. Foreign Government                               | SRCE-B        |
| 6. Employer                                         | SRCE-L        |
| 7. Other                                            | SRCE-M        |

Because the new source of support variable code frame groups these sources somewhat differently than in the past, users should approach generalizations on trends in financing doctoral education with caution. For example, the table below breaks down the categories further. It pinpoints the source of the decline in the "Own Resources" category: the double-digit drop in the "Other personal earnings in graduate school" category. At the same time, it shows that the increase in doctorate recipients indicating they received fellowships accounts for almost all of the increased proportion of doctorate recipients in the category "Fellowships/Dissertation

Grants." While the earlier years' data suggests a slight increase in the proportion of doctorate recipients indicating "Fellowships/Dissertation Grants" as their primary source of support, the one-year increase of more than 5 percent from 1994-97 to 1998 raises questions. Again, data from another National Science Foundation survey, The Survey of Graduate Students and Postdoctorates in Science and Engineering, suggest that proportion of graduate students relying on fellowship aid has remained relatively flat since the early 1980s.

| <b>Distribution of Responses to Source of Support Variable, 1990-1998<br/>(SRCEPRIM used in these calculations)</b> |                  |             |                  |             |             |             |
|---------------------------------------------------------------------------------------------------------------------|------------------|-------------|------------------|-------------|-------------|-------------|
| <b>Source of Support</b>                                                                                            | <b>1990-1993</b> |             | <b>1994-1997</b> |             | <b>1998</b> |             |
|                                                                                                                     | <b>No.</b>       | <b>Pct.</b> | <b>No.</b>       | <b>Pct.</b> | <b>No.</b>  | <b>Pct.</b> |
| Loans (from any source)                                                                                             | 2,912            | 2.6         | 4,150            | 3.1         | 2,324       | 6.2         |
| Foreign (non-U.S.) support                                                                                          | 3,020            | 2.7         | 3,180            | 2.4         | 952         | 2.5         |
| Fellowship, scholarship                                                                                             | 9,606            | 8.7         | 13,905           | 10.3        | 5,953       | 15.8        |
| Dissertation grant                                                                                                  | --               | --          | --               | --          | 183         | 0.5         |
| Teaching assistantship                                                                                              | 19,492           | 17.7        | 23,694           | 17.5        | 6,707       | 17.8        |
| Research assistantship                                                                                              | 28,539           | 26.0        | 36,701           | 27.1        | 9,369       | 24.9        |
| Traineeship                                                                                                         | 2,487            | 2.3         | 2,524            | 1.9         | 562         | 1.5         |
| Internship or residency                                                                                             | --               | --          | --               | --          | 55          | 0.1         |
| Personal savings                                                                                                    | --               | --          | --               | --          | 1241        | 3.3         |
| Other personal earnings during graduate school                                                                      | 28,084           | 25.6        | 30,618           | 22.6        | 4,678       | 12.4        |
| Spouse's, significant other's, or family earnings or savings                                                        | 12,786           | 11.6        | 14,912           | 11.0        | 3,905       | 10.4        |
| Employer reimbursement/assistance                                                                                   | 2,072            | 1.9         | 2,995            | 2.2         | 1,184       | 3.1         |
| Other                                                                                                               | 912              | 0.8         | 2,624            | 1.9         | 586         | 1.6         |

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

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## **APPENDIX D**

### **Survey of Earned Doctorates Questionnaire Academic Year 1998**

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*Please print your name in full:*

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| First Name | Middle Name | Last Name | Suffix (e.g., Jr.) |
|------------|-------------|-----------|--------------------|
|------------|-------------|-----------|--------------------|

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Cross reference: Birth name or former name legally changed

# *Survey of Earned Doctorates*

*July 1, 1997 to June 30, 1998*

*Conducted by*

**The National Opinion Research Center at the University of Chicago**

*for*

**The National Science Foundation**

**The National Institutes of Health**

**The National Endowment for the Humanities**

**The U.S. Department of Education**

**The U.S. Department of Agriculture**

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The time needed to complete this form varies according to individual circumstances, but the average time is estimated to be 20 minutes. If you have comments regarding this time estimate, you may write to the National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230, Attention: NSF Reports Clearance Officer.

NATIONAL SCIENCE FOUNDATION  
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**To the Doctorate Recipient:**

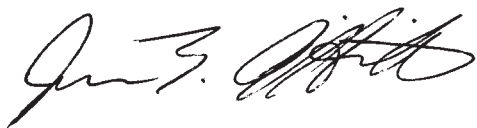
Congratulations on earning a doctoral degree! This is an important accomplishment for you. Your accomplishment is also significant for both this nation and others, as the new knowledge generated by research doctorates enhances the quality of life in this country and throughout the world. Because of the importance of persons earning research doctorates, several Federal agencies listed on the cover sponsor this Survey of Earned Doctorates.

The basic purpose of this survey is to gather objective data about doctoral graduates. These data are important in improving graduate education both at your home institution and beyond. Often, decisions made by governmental and private agencies to develop new programs, or to support present ones, are based in part on the data developed from this survey.

This form is distributed by the Graduate Deans and is filled out by all persons who have completed the requirements for a research doctoral degree. Please print your name on the cover if you have not already done so, and then complete this questionnaire and return it to the Graduate Dean. The confidentiality of the information you provide is carefully protected.

On behalf of the sponsoring Federal agencies, I thank you for your participation in this survey.

Best wishes,



Jeanne E. Griffith  
Director, Division of Science Resources Studies



## INSTRUCTIONS

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

- If you have not already done so, please print your name on the front cover.
- You may use either a pen or pencil.
- When answering questions that require marking a box, please use an **f**X.
- If you need to change an answer, please make sure that your old answer is either completely erased or clearly crossed out.
- On pages 8 and 9 (inside the back cover) is a Specialties List for classifying your field(s) of specialization in Questions A2, A10, B5, and B9.

Thanks again for your help; we really appreciate it.

## PART A - Education

### A1. What is the title of your dissertation?

- Please mark (X) this box if the title below refers to a performance, project report or a musical or literary composition required instead of a dissertation

Title \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### A2. Using the Specialties List (pages 8-9), please write the name and number of the field of your dissertation research.

Name of field \_\_\_\_\_  
 Number of field \_\_\_\_\_

### A3. After receiving your first bachelor's degree (or equivalent), and including the period spent on your dissertation, how many years were you a full-time student?

\_\_\_\_\_ Years (whole numbers)

### A4. Please check the category that most fully describes your employment or study status during the year immediately before the award of the doctorate.

Mark (X) one

- 0  Full-time employed → **GO to A5**
- 1  Held fellowship
- 2  Held assistantship
- 3  Part-time employed
- 4  Not employed
- 5  Other - *Specify* ↓

**SKIP  
to  
A6**

\_\_\_\_\_

### A5. (IF FULL-TIME EMPLOYED) What type of position did you hold?

Mark (X) one

- 6  College or university, faculty
- 7  College or university, non-faculty
- 8  Elementary or secondary school, teaching
- 9  Elementary or secondary school, non-teaching
- 11  Industry or business
- 12  Other - *Specify* ↓

\_\_\_\_\_

### A6. In what state or country was the high school/secondary school that you last attended?

State (if U.S.) \_\_\_\_\_

**OR**

Country (if not U.S.) \_\_\_\_\_

### A7. When did you graduate from high school/secondary school?

Month \_\_\_\_\_ Year \_\_\_\_\_  
 \_\_\_\_\_ **19** \_\_\_\_\_

### A8. Please name the department (or interdisciplinary committee, center, institute, etc.) of the university that supervised your doctoral program.

- Mark (X) box if none

\_\_\_\_\_

Department/Committee/Center/Institute/Program

### A9. Please name the school or college within the university that supervised your doctoral program.

- Mark (X) box if not applicable

\_\_\_\_\_

School or College within University

**A10. Please list below, chronologically, all colleges (including 2-year) and graduate institutions you have attended and each degree earned (if any). Be sure to give the years attended for ALL institutions attended. Include your doctoral institution(s) and degree at the end.**

Mark (X) box if bachelor's degree (or equivalent) was never received.

Mark (X) box if master's degree (or equivalent) was never received.

| EXAMPLE<br>Institution and Location   |                 |                   | Years Attended        |           | Field of Study                  |                               | Degree (if any) |             |          |           |
|---------------------------------------|-----------------|-------------------|-----------------------|-----------|---------------------------------|-------------------------------|-----------------|-------------|----------|-----------|
|                                       |                 |                   |                       |           | Use Specialties List, pages 8-9 |                               | Granted         |             |          |           |
| Institution                           | Branch or City  | State or Province | Country (if not U.S.) | From      | To                              | Field Name                    | Number          | Title       | Mo.      | Yr.       |
| <i>Indian Institute of Technology</i> | <i>Madras</i>   |                   | <i>India</i>          | <i>83</i> | <i>85</i>                       | <i>Mechanical Engineering</i> | <i>345</i>      | _____       | _____    | _____     |
| <i>University of California</i>       | <i>Berkeley</i> | <i>CA</i>         |                       | <i>85</i> | <i>87</i>                       | <i>Mechanical Engineering</i> | <i>345</i>      | <i>B.S.</i> | <i>6</i> | <i>87</i> |
| Institution and Location              |                 |                   | Years Attended        |           | Field of Study                  |                               | Degree (if any) |             |          |           |
|                                       |                 |                   |                       |           | Use Specialties List, pages 8-9 |                               | Granted         |             |          |           |
| Institution                           | Branch or City  | State or Province | Country (if not U.S.) | From      | To                              | Field Name                    | Number          | Title       | Mo.      | Yr.       |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |
|                                       |                 |                   |                       |           |                                 |                               |                 |             |          |           |

*If you have attended more than six institutions of higher education, please continue this list on the back cover. Be sure to include your doctoral institution.*

**A11. Which of the following were sources of money to cover living and/or educational expenses during your doctoral programs?**

Mark (X) Yes or No for each

|                                                               | Yes                        | No                         | Don't Know               |
|---------------------------------------------------------------|----------------------------|----------------------------|--------------------------|
| a. Loans (from any source)                                    | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| b. Foreign (non-U.S.) support                                 | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| c. Fellowship, scholarship                                    | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| d. Dissertation grant                                         | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| e. Teaching assistantship                                     | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| f. Research assistantship                                     | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| g. Traineeship                                                | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| h. Internship or residency                                    | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| i. Personal savings                                           | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| j. Other personal earnings during graduate school             | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| k. Spouse™, significant other™, or family earnings or savings | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| l. Employer reimbursement/assistance                          | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |
| m. Other - <i>Specify</i> ↓                                   | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | <input type="checkbox"/> |

**A12. Which TWO sources listed in A11 gave you the most support?**

Enter letters of primary and secondary sources

- \_\_\_\_\_ Primary source of support  
 *Mark (X) if no primary source*
  
- \_\_\_\_\_ Secondary source of support  
 *Mark (X) if no secondary source*

**A13. When you receive your doctoral degree, how much money will you owe that is directly related to your undergraduate and/or graduate education (tuition and fees, living expenses and supplies, transportation to and from school)?**

- 0  None
- 1  \$5,000 or less
- 2  \$5,001 - \$10,000
- 3  \$10,001 - \$15,000
- 4  \$15,001 - \$20,000
- 5  \$20,001 - \$25,000
- 6  \$25,001 - \$30,000
- 7  \$30,001 or more

**PART B - Postgraduation Plans**

**B1. How definite are your immediate postgraduate plans?**

Mark (X) one

- 0  Am returning to, or continuing in, predoctoral employment
- 1  Have signed contract or made definite commitment for other work or study → **GO to B2, page 5**
- 2  Am negotiating with one or more specific organizations
- 3  Am seeking position but have no specific prospects **SKIP to B3, page 5**
- 4  Other - *Specify* ↓

**B2. Please name the organization and geographic location where you will work or study.**

\_\_\_\_\_ **SKIP to B4**

Name

\_\_\_\_\_ **SKIP to B4**

City State Country  
(if U.S.) (if not U.S.)

**B3. In what state or country do you intend to live after graduation?**

Mark (X) one

0  in U.S. → State \_\_\_\_\_

1  not in U.S. → Country \_\_\_\_\_

**B4. What best describes your immediate postgraduate plans?**

Mark (X) one

0  Postdoctoral fellowship

1  Postdoctoral research associateship

2  Traineeship

3  Other study - Specify ↓

4  Employment (other than 0,1,2,3)

5  Military service

6  Other - Specify ↓ **SKIP to B7**

**B5. Please use the Specialties List (pages 8-9) to enter the name and number of your postdoctoral field.**

Name of field \_\_\_\_\_

Number of field \_\_\_\_\_

**B6. What will be the main source of financial support for your postdoctoral study/research?**

Mark (X) one

0  U.S. Government

1  College or university

2  Private foundation

3  Nonprofit, other than private foundation

4  Other - Specify ↓ **SKIP to C1, page 6**

6  Unknown

**B7. For what type of employer will you be working?**

Mark (X) one

EDUCATION

- a  U.S. 4-year college or university other than medical school
- b  U.S. medical school
- c  U.S. junior or community college
- d  Elementary or secondary school
- e  Foreign institution

GOVERNMENT

- f  Foreign government
- g  U.S. federal government
- h  U.S. state government
- i  U.S. local government

PRIVATE SECTOR

- j  Nonprofit organization
- k  Industry or business
- l  Self-employed

OTHER

- m  Other - Specify ↓

**B8. From the list below, please indicate what your primary and secondary work activities will be by entering the numbers of your selections in the appropriate boxes:**

Enter numbers from below:

- a. \_\_\_\_\_ Primary Activity
- b. \_\_\_\_\_ Secondary Activity

- 0 Research and development
- 1 Teaching
- 2 Administration
- 3 Professional services to individuals
- 5 Other - Specify ↓

**B9. Please use the Specialties List (pages 8-9) to enter the name and number of the field in which you will be working.**

Name of field \_\_\_\_\_

Number of field \_\_\_\_\_

## PART C - Background Information

**C1. Are you -**

- 1  Male
- 2  Female

**C2. What is your marital status?**

Mark (X) one

- 1  Married
- 2  Living in a marriage - like relationship
- 3  Widowed
- 4  Separated/divorced
- 5  Never married

**C3. Not including yourself, how many dependents do you have - that is, how many others receive at least one half of their support from you?**

\_\_\_\_\_ Number

**C4. What is the highest educational attainment of your mother and father?**

Mark (X) one for each parent

|                                        | a. Mother                  | b. Father                  |
|----------------------------------------|----------------------------|----------------------------|
|                                        | ↓                          | ↓                          |
| Less than high school/secondary school | 1 <input type="checkbox"/> | 1 <input type="checkbox"/> |
| High-school/secondary-school graduate  | 2 <input type="checkbox"/> | 2 <input type="checkbox"/> |
| Some college                           | 3 <input type="checkbox"/> | 3 <input type="checkbox"/> |
| Bachelor <sup>TM</sup> degree          | 4 <input type="checkbox"/> | 4 <input type="checkbox"/> |
| Master <sup>TM</sup> degree            | 5 <input type="checkbox"/> | 5 <input type="checkbox"/> |
| Professional degree                    | 6 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| Doctoral degree                        | 7 <input type="checkbox"/> | 7 <input type="checkbox"/> |

**C5. What is your place of birth?**

State (if U.S.)

\_\_\_\_\_

**OR**

Country (if not U.S.)

\_\_\_\_\_

**C6. What is your date of birth?**

Month                      Day                      Year  
 \_\_\_\_\_ | \_\_\_\_\_ |                      19 \_\_\_\_\_ | \_\_\_\_\_

**C7. What is your citizenship status?**

Mark (X) one

U.S. Citizen:

- 0  Native Born \_\_\_\_\_ → **SKIP to C9**
- 1  Naturalized \_\_\_\_\_

Non-U.S. Citizen:

- 2  With a Permanent U.S. Resident Visa
- 3  With a Temporary U.S. Resident Visa

**C8. (IF A NON-U.S. CITIZEN) Of which country are you a citizen?**

\_\_\_\_\_

(Specify country of present citizenship)

**C9. Are you a person with a disability?**

- 1  Yes
- 2  No → **SKIP to C11**

**C10. (IF YES) Which of the following categories describes your disability?**

- 1  Visual
- 2  Orthopedic (mobility)
- 3  Auditory (hearing)
- 4  Vocal
- 5  Other - Specify ↓

**C11. Are you Hispanic?**

- 0  Yes → **GO to C12, page 7**
- 1  No → **SKIP to C13, page 7**



## SPECIALTIES LIST

INSTRUCTIONS: The following field listing is to be used in responding to items A2, A10, B5, and B9. If you choose a field marked with an asterisk (\*), please write in your field of specialization in the space provided in those items.

|                                                 |                                                |                                                 |
|-------------------------------------------------|------------------------------------------------|-------------------------------------------------|
| <b>AGRICULTURAL SCIENCES</b>                    | 189 Zoology, Other*                            | 435 Geometry                                    |
| 000 Agricultural Economics                      | 198 Biological Sciences, General               | 440 Logic (See also 785)                        |
| 002 Agricultural Business & Mgmt.               | 199 Biological Sciences, Other*                | 445 Number Theory                               |
| 005 Animal Breeding & Genetics                  |                                                | 450 Mathematical Statistics                     |
| 010 Animal Nutrition                            | <b>HEALTH SCIENCES</b>                         | 455 Topology                                    |
| 012 Dairy Science                               | 200 Speech-Lang.<br>Pathology & Audiology      | 460 Computing Theory & Practice                 |
| 014 Poultry Science                             | 210 Environmental Health                       | 465 Operations Research<br>(See also 363, 930)  |
| 055 Fisheries Sci. & Management                 | 212 Health Systems/Service Admin.              | 498 Mathematics, General                        |
| 019 Animal Sciences, Other*                     | 215 Public Health                              | 499 Mathematics, Other*                         |
| 020 Agronomy & Crop Science                     | 220 Epidemiology (See also 133)                |                                                 |
| 025 Plant Breeding & Genetics                   | 222 Exercise Physiology/<br>Sci., Kinesiology  | <b>PHYSICAL SCIENCES</b>                        |
| 030 Plant Pathology (See also 120)              | 230 Nursing                                    | <b>Astronomy</b>                                |
| 039 Plant Sciences, Other*                      | 240 Pharmacy                                   | 500 Astronomy                                   |
| 043 Food Engineering                            | 245 Rehabilitation/Therapeutic Services        | 505 Astrophysics                                |
| 044 Food Sciences, Other*                       | 250 Veterinary Medicine                        |                                                 |
| 046 Soil Chemistry/Microbiology                 | 298 Health Sciences, General                   | <b>Atmospheric Sci. and Meteorology</b>         |
| 049 Soil Sciences, Other*                       | 299 Health Sciences, Other*                    | 510 Atmospheric Physics & Chemistry             |
| 050 Horticulture Science                        |                                                | 512 Atmospheric Dynamics                        |
| 066 Forest Biology                              | <b>ENGINEERING</b>                             | 514 Meteorology                                 |
| 068 Forest Engineering                          | 300 Aerospace, Aeronaut. & Astronaut.          | 518 Atmos. Sci./Meteorol., General              |
| 070 Forest Management                           | 303 Agricultural                               | 519 Atmos. Sci./Meteorol., Other*               |
| 072 Wood Sci. & Pulp/Paper Tech.                | 306 Bioengineering & Biomedical                |                                                 |
| 074 Conserv./Renewable Natural Res.             | 309 Ceramic Sciences                           | <b>Chemistry</b>                                |
| 079 Forestry & Related Sci., Other*             | 312 Chemical                                   | 520 Analytical                                  |
| 080 Wildlife/Range Management                   | 315 Civil                                      | 522 Inorganic                                   |
| 098 Agricultural Sci., General                  | 318 Communications                             | 524 Nuclear                                     |
| 099 Agricultural Sci., Other*                   | 321 Computer                                   | 526 Organic                                     |
| <b>BIOLOGICAL SCIENCES</b>                      | 324 Electrical & Electronics                   | 528 Medicinal/Pharmaceutical                    |
| 100 Biochemistry                                | 327 Engineering Mechanics                      | 530 Physical                                    |
| 103 Biomedical Sciences                         | 330 Engineering Physics                        | 532 Polymer                                     |
| 105 Biophysics                                  | 333 Engineering Science                        | 534 Theoretical                                 |
| 107 Biotechnology Research                      | 336 Environmental Health Engineering           | 538 Chemistry, General                          |
| 110 Bacteriology                                | 339 Industrial & Manufacturing                 | 539 Chemistry, Other*<br>(See 100 Biochemistry) |
| 115 Plant Genetics                              | 342 Materials Science                          |                                                 |
| 120 Plant Pathology (See also 030)              | 345 Mechanical                                 | <b>Geological &amp; Related Sciences</b>        |
| 125 Plant Physiology                            | 348 Metallurgical                              | 540 Geology                                     |
| 129 Botany, Other*                              | 351 Mining & Mineral                           | 542 Geochemistry                                |
| 130 Anatomy                                     | 357 Nuclear                                    | 544 Geophysics & Seismology                     |
| 133 Biometrics & Biostatistics                  | 360 Ocean                                      | 546 Paleontology                                |
| 136 Cell Biology (See also 154)                 | 363 Operations Research<br>(See also 465, 930) | 548 Mineralogy & Petrology                      |
| 139 Ecology                                     | 366 Petroleum                                  | 550 Stratigraphy & Sedimentation                |
| 142 Developmental Bio./Embryology               | 369 Polymer & Plastics                         | 552 Geomorphology & Glacial Geology             |
| 145 Endocrinology                               | 372 Systems                                    | 558 Geolog. & Related Sci., General             |
| 148 Entomology                                  | 398 Engineering, General                       | 559 Geolog. & Related Sci., Other*              |
| 151 Biological Immunology                       | 399 Engineering, Other*                        |                                                 |
| 154 Molecular Biology                           |                                                | <b>Physics</b>                                  |
| 157 Microbiology                                | <b>COMPUTER AND INFORMATION<br/>SCIENCES</b>   | 560 Acoustics                                   |
| 160 Neuroscience                                | 400 Computer Science                           | 561 Chemical & Atomic/Molecular                 |
| 163 Nutritional Sciences                        | 410 Information Science & Systems*             | 564 Elementary Particle                         |
| 166 Parasitology                                |                                                | 566 Fluids                                      |
| 169 Toxicology                                  | <b>MATHEMATICS</b>                             | 568 Nuclear                                     |
| 170 Genetics, Human & Animal                    | 420 Applied Mathematics                        | 569 Optics                                      |
| 175 Pathology, Human & Animal<br>(See also 120) | 425 Algebra                                    | 570 Plasma & High-Temperature                   |
| 180 Pharmacology, Human & Animal                | 430 Analysis & Functional Analysis             | 572 Polymer                                     |
| 185 Physiology, Human & Animal                  |                                                |                                                 |



## SPECIALTIES LIST (continued)

574 Solid State & Low-Temperature  
 578 Physics, General  
 579 Physics, Other\*

### Miscellaneous Physical Sciences

580 Environmental Science  
 585 Hydrology & Water Resources  
 590 Oceanography  
 595 Marine Sciences  
 599 Misc. Physical Sciences, Other\*

### PSYCHOLOGY

600 Clinical  
 603 Cognitive & Psycholinguistics  
 606 Comparative  
 609 Counseling  
 612 Developmental & Child  
 613 Human/Indiv. & Family Devlpmt.  
 615 Experimental  
 618 Educational (See also 822)  
 620 Family & Marriage Counseling  
 621 Indust. & Organiz. (See also 935)  
 624 Personality  
 627 Physiological/Psychobiology  
 630 Psychometrics  
 633 Quantitative  
 636 School (See also 825)  
 639 Social  
 648 Psychology, General  
 649 Psychology, Other\*

### SOCIAL SCIENCES

650 Anthropology  
 652 Area Studies  
 658 Criminology  
 662 Demography/Population Studies  
 666 Economics  
 668 Econometrics  
 670 Geography  
 674 International Relations/Affairs  
 678 Political Sci. & Government  
 682 Public Policy Analysis  
 686 Sociology  
 690 Statistics (See also 450)  
 694 Urban Affairs/Studies  
 698 Social Sciences, General  
 699 Social Sciences, Other\*

### HUMANITIES

#### History

700 History, American  
 703 History, Asian  
 705 History, European  
 710 History/Philosophy of Sci. & Tech.  
 718 History, General  
 719 History, Other\*

**Letters**  
 720 Classics  
 723 Comparative Literature  
 729 Linguistics  
 732 Literature, American  
 733 Literature, English  
 734 English Language  
 736 Speech & Rhetorical Studies  
 738 Letters, General  
 739 Letters, Other\*

### Foreign Languages and Literature

740 French  
 743 German  
 746 Italian  
 749 Spanish  
 752 Russian  
 755 Slavic (other than Russian)  
 758 Chinese  
 762 Japanese  
 765 Hebrew  
 768 Arabic  
 769 Other Languages & Literature\*

### Other Humanities

770 American Studies  
 773 Archeology  
 776 Art History/Criticism/Conserv.  
 780 Music  
 785 Philosophy (See also 440)  
 790 Religion (See also 984)  
 795 Drama/Theater Arts  
 798 Humanities, General  
 799 Humanities, Other\*

### EDUCATION

800 Curriculum & Instruction  
 805 Educational Admin. & Supervision  
 807 Educational Leadership  
 810 Educ./Instruct. Media Design  
 815 Educ. Stat./Research Methods  
 820 Educ. Assess./Test./Meas.  
 822 Educ. Psychology (See also 618)  
 825 School Psychology (See also 636)  
 830 Social/Phil. Found. of Education  
 835 Special Education  
 840 Couns. Educ./Couns. & Guid. Serv.  
 845 Higher Education/Eval. & Research

### Teacher Education

850 Pre-elementary/Early Childhood  
 852 Elementary  
 856 Secondary  
 858 Adult & Continuing

### Teaching Fields

860 Agricultural Education  
 861 Art Education  
 862 Business Education

864 English Education  
 866 Foreign Languages Education  
 868 Health Education  
 870 Home Economics Education  
 872 Tech. & Indust. Arts Education  
 874 Mathematics Education  
 876 Music Education  
 878 Nursing Education  
 880 Physical Education & Coaching  
 882 Reading Education  
 884 Science Education  
 885 Social Science Education  
 887 Technical Education  
 888 Trade & Industrial Education  
 889 Teacher Educ., Specific Acad. & Voc. Prog., Other\*

### Other Education

898 Education, General  
 899 Education, Other\*

### PROFESSIONAL FIELDS

#### Business Management and Administrative Services

900 Accounting  
 905 Banking/Financial Support Serv.  
 910 Business Admin. & Management  
 915 Business/Managerial Economics  
 916 International Business  
 917 Mgmt. Info. Sys./Bus. Data Proc.  
 920 Marketing Management & Research  
 930 Operations Research  
 (See also 363, 465)  
 935 Organiz. Behavior (See also 621)  
 938 Bus. Mgmt./Admin. Serv., Gen.  
 939 Bus. Mgmt./Admin. Serv., Other\*

#### Communications

940 Communications Research  
 947 Mass Communications  
 957 Communication Theory  
 958 Communications, General  
 959 Communications, Other\*  
 (See also 736)

#### Other Professional Fields

960 Architec. Environ. Design  
 964 Home Economics  
 968 Law  
 972 Library Science  
 974 Parks/Rec./Leisure/Fitness  
 976 Public Administration  
 980 Social Work  
 984 Theol./Religious Education  
 (See also 790)  
 988 Professional Fields, General  
 989 Professional Fields, Other\*

### OTHER FIELDS\*

999 Other

# Comments About This Survey

**Please return this questionnaire to your GRADUATE DEAN for forwarding to Survey of Earned Doctorates, National Opinion Research Center at the University of Chicago, 1525 East 55th Street, Chicago, IL 60615. Should you need to call us, our toll free number is 1-800-248-8649.**

| OFFICE USE ONLY |               |            |             |          |      |
|-----------------|---------------|------------|-------------|----------|------|
| Case ID:        | Instit. Code: | Grad Date: | Main Disp.: |          |      |
| PROCESSING      |               |            |             |          |      |
| Receipt         |               | Editing    |             | CADE     |      |
| Initials        | Date          | Initials   | Date        | Initials | Date |
|                 |               |            |             |          |      |
| Ver. Adjust     |               | Retrieval  |             | Updates  |      |
| Initials        | Date          | Initials   | Date        | Initials | Date |
|                 |               |            |             |          |      |

## **APPENDIX E**

### **Field Classification and Research Degree Titles**

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## APPENDIX E: Field Classification and Research Degree Titles

The appendix tables present data according to the following field classifications. Appendix TableA -1 and A-2 and Appendix TableB-1 display all subfields that are on the survey Specialties List. Appendix TablesA -4, A-5, and A-6 show data by seven broadfields only. Appendix TablesA -3 and A-7 include the additional field groupings indicated below.

### SCIENCES

#### Physical Sciences (400-599)

Physics and Astronomy (500-505, 560-579)  
 Chemistry (520-539)  
 Earth, Atmospheric, and Marine Sciences  
 (510-519, 540-559, 590-599)  
 Mathematics (420-499)  
 Computer Sciences (400410) } Combined in TableA-7

#### Engineering (300-399)

#### Life Sciences (000-299)

Biological Sciences (100-199)  
 Biochemistry (100)  
 Other Biological Sciences (100-199)  
 Health Sciences (200-299)  
 Agricultural Sciences (000-099)

#### Social Sciences (600-699)

Psychology (600-649)  
 Economics and Econometrics (666, 668)  
 Anthropology and Sociology (650, 686)  
 Political Science and International Relations  
 (674,678)  
 Other Social Sciences  
 (652-662, 670, 672, 682, 690-699) } Combined in TableA-7

### NONSCIENCES

#### Humanities (700-799)

History (700-719)  
 English and American Language  
 and Literature (732-734)  
 Foreign Languages and Literature  
 (740-769)  
 Other Humanities  
 (720-729, 736-739, 770-799) } Combined in TableA-7

#### Education (800-899)

#### Professional and Other Fields (900-999)

Business and Management (900-939)  
 Other Professional Fields (940-989)  
 Other Fields (999)

**NOTE:** Doctorate recipients indicate their fields of specialty. Their choices may differ from departmental names.

### TITLES OF RESEARCH DEGREES INCLUDED IN THE SURVEY OF EARNED DOCTORATES

|                  |                                            |                |                                                 |
|------------------|--------------------------------------------|----------------|-------------------------------------------------|
| <b>DA/DAT</b>    | <b>Doctor of Arts/Arts in Teaching</b>     | <b>DMM</b>     | <b>Doctor of Music Ministry</b>                 |
| <b>DArch</b>     | <b>Doctor of Architecture</b>              | <b>DMSc</b>    | <b>Doctor of Medical Science</b>                |
| <b>DAS</b>       | <b>Doctor of Applied Science</b>           | <b>DNSc</b>    | <b>Doctor of Nursing Science</b>                |
| <b>DBA</b>       | <b>Doctor of Business Administration</b>   | <b>DPA</b>     | <b>Doctor of Public Administration</b>          |
| <b>DChem</b>     | <b>Doctor of Chemistry</b>                 | <b>DPE</b>     | <b>Doctor of Physical Education</b>             |
| <b>DCJ</b>       | <b>Doctor of Criminal Justice</b>          | <b>DPH</b>     | <b>Doctor of Public Health</b>                  |
| <b>DCL</b>       | <b>Doctor of Comparative Law/Civil Law</b> | <b>DPS</b>     | <b>Doctor of Professional Studies</b>           |
| <b>DCrim</b>     | <b>Doctor of Criminology</b>               | <b>DrDES</b>   | <b>Doctor of Design</b>                         |
| <b>DED</b>       | <b>Doctor of Environmental Design</b>      | <b>DRE</b>     | <b>Doctor of Religious Education</b>            |
| <b>DEng</b>      | <b>Doctor of Engineering</b>               | <b>DRec/DR</b> | <b>Doctor of Recreation</b>                     |
| <b>DEnv</b>      | <b>Doctor of Environment</b>               | <b>DSc/ScD</b> | <b>Doctor of Science</b>                        |
| <b>DESc/ScDE</b> | <b>Doctor of Engineering Science</b>       | <b>DScD</b>    | <b>Doctor of Science in Dentistry</b>           |
| <b>DF</b>        | <b>Doctor of Forestry</b>                  | <b>DScH</b>    | <b>Doctor of Science and Hygiene</b>            |
| <b>DFA</b>       | <b>Doctor of Fine Arts</b>                 | <b>DScVM</b>   | <b>Doctor of Science in Veterinary Medicine</b> |
| <b>DGS</b>       | <b>Doctor of Geological Science</b>        | <b>DSM</b>     | <b>Doctor of Sacred Music</b>                   |
| <b>DHL</b>       | <b>Doctor of Hebrew Literature/Letters</b> | <b>DSSc</b>    | <b>Doctor of Social Science</b>                 |
| <b>DHS</b>       | <b>Doctor of Health and Safety</b>         | <b>DSW</b>     | <b>Doctor of Social Work</b>                    |
| <b>DHS</b>       | <b>Doctor of Hebrew Studies</b>            | <b>EdD</b>     | <b>Doctor of Education</b>                      |
| <b>DIT</b>       | <b>Doctor of Industrial Technology</b>     | <b>JCD</b>     | <b>Doctor of Canon Law</b>                      |
| <b>DLS</b>       | <b>Doctor of Library Science</b>           | <b>JSD</b>     | <b>Doctor of Juristic Science</b>               |
| <b>DM</b>        | <b>Doctor of Musk</b>                      | <b>LScD</b>    | <b>Doctor of Science of Law</b>                 |
| <b>DMA</b>       | <b>Doctor of Musical Arts</b>              | <b>PhD</b>     | <b>Doctor of Philosophy</b>                     |
| <b>DME</b>       | <b>Doctor of Musical Education</b>         | <b>RhD</b>     | <b>Doctor of Rehabilitation</b>                 |
| <b>DMin/DM</b>   | <b>Doctor of Ministry</b>                  | <b>SJD</b>     | <b>Doctor of Juridical Science</b>              |
| <b>DMiss</b>     | <b>Doctor of Missiology</b>                | <b>STD</b>     | <b>Doctor of Sacred Theology</b>                |
| <b>DML</b>       | <b>Doctor of Modern Languages</b>          | <b>ThD</b>     | <b>Doctor of Theology</b>                       |

# NSF Publications from the Doctorate Data Project

| <b>DATA BRIEFS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>ISSUE BRIEFS</b>                                                                                        | <b>REPORTS</b>                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Healthy Economy Yields Even Lower Unemployment Rate for Doctoral Scientists and Engineers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Ph.D. Unemployment Trends: Cause for Alarm?                                                                | Science and Engineering Doctorate Awards: 1998                                                                       |
| Doctorate Awards Declining in Some Science and Engineering Fields                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | What's Happening in the Labor Market for Recent Science and Engineering Ph.D. Recipients?                  | Science and Engineering Doctorates: 1960-91                                                                          |
| Despite Increases, Women and Minorities Still Underrepresented in Undergraduate Science and Engineering Education                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Is the Gender Gap in Unemployment Disappearing?                                                            | Characteristics of Doctoral Scientists and Engineers in the U.S.: 1997 Early Release Tables                          |
| Doctoral Awards Increase in S&E Overall, But Computer Science Declines for First Time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | What is Happening to Academic Employment of Scientists and Engineers?                                      | Characteristics of Doctoral Scientists and Engineers in the U.S.: 1997                                               |
| Employment of Scientists and Engineers Reaches 3.2 Million in 1995                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | International Mobility of Scientists and Engineers to the United States – Brain Drain or Brain Circulation | Who is Unemployed? Factors Affecting Unemployment Among Individuals with Doctoral Degrees in Science and Engineering |
| Number of Doctoral Scientists and Engineers Grows by 6 Percent Between 1993 and 1995                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | What is the Debt Burden of New Science and Engineering Ph.D.'s?                                            | Science and Engineering State Profiles: 1997                                                                         |
| <p style="text-align: center;"><b><i>Data sources and publications sources:</i></b></p> <p><i>These publications contain data from the annual Survey of Earned Doctorates (a universe survey on the education of research doctorates) and the biennial Survey of Doctorate Recipients (a longitudinal sample survey of S&amp;E doctorates on the workforce characteristics).</i></p> <p><i>Complete electronic information on these surveys and publications may be obtained from <a href="http://www.nsf.gov/sbe/srs/stats.htm">www.nsf.gov/sbe/srs/stats.htm</a>.</i></p> <p><i>Written reports may be ordered online at <a href="http://www.nsf.gov/home/orderpub.htm">www.nsf.gov/home/orderpub.htm</a> or by calling 301-947-2722.</i></p> <p><i>For further information please contact Susan T. Hill, Director, Doctorate Data Project, <a href="mailto:sthill@nsf.gov">sthill@nsf.gov</a>.</i></p> | Are Forms of Financial Support and Employment Choices of Recent Science and Engineering Ph.D.'s Related?   | Doctoral Scientists and Engineers in the U.S.: 1997 Profile (forthcoming)                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Does the Educational Debt Burden of Science and Engineering Doctorates Differ by Race/Ethnicity and Sex?   | Statistical Profiles of Foreign Doctoral Recipients in Science and Engineering: Plans to Stay in the United States   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Degrees and Occupations in Engineering: How Do They Diverge?                                               | Women, Minorities, and Persons with Disabilities in Science and Engineering: 1998                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Has the Use of Postdocs Changed?                                                                           | Science and Engineering Degrees: 1966-96                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | How Much Does the U.S. Rely on Immigrant Engineers?                                                        | Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1989-96                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | What Follows Postdoctorate Experience? Employment Patterns of 1993 Postdocs in 1995                        | SESTAT: A Tool for Studying Scientists and Engineers in the United States                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | How Large is the Gap in Salaries of Male and Female Engineers?                                             |                                                                                                                      |

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