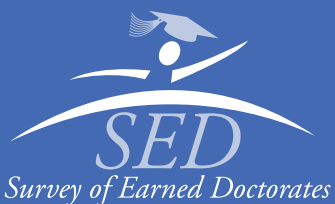




Doctorate Recipients from U.S. Universities

2011



National Center for Science and Engineering Statistics
Directorate for Social, Behavioral and Economic Sciences

National Science Foundation
DECEMBER 2012

About This Report

THE SURVEY OF EARNED DOCTORATES, the data source for this report, is an annual census of individuals who receive research doctoral degrees from accredited U.S. academic institutions. The survey is sponsored by six federal agencies: the National Aeronautics and Space Administration, National Endowment for the Humanities, National Institutes of Health, National Science Foundation (NSF), U.S. Department of Agriculture, and U.S. Department of Education. These data are reported in several NSF publications, the most comprehensive and widely cited of which is this report, *Doctorate Recipients from U.S. Universities*.

This report calls attention to important trends in doctoral education, organized into five themes. Each theme highlights an important question about doctorate recipients. Online, the reader is invited to explore trends in greater depth through detailed data tables and interactive graphics (www.nsf.gov/statistics/sed/). Technical notes and other online resources are provided to aid in interpretation of the data. The data tables are available both in portable document format (PDF) and as Excel files for easy viewing, printing, and downloading.

Doctorate Recipients from U.S. Universities: 2011



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National Science Foundation ■ **DECEMBER 2012** ■ NSF 13-301

Why is this important?

THE AMERICAN SYSTEM OF DOCTORAL EDUCATION is widely considered among the world's best, as evidenced by the large and growing number of international students each year, many of them among the top students in their countries, who choose to pursue the doctoral degree at U.S. universities. But the continued preeminence of U.S. doctoral education is not assured. Other nations, recognizing the contributions doctorate recipients make to economies and cultures, are investing heavily in doctoral education. Unless doctoral education in the United States continues to improve, the world's brightest students, including U.S. citizens, may go elsewhere for the doctoral degree, and they may begin careers elsewhere as well.

Annual counts of doctorate recipients are measures of the incremental investment in human resources devoted to science, engineering, research, and scholarship, and they can serve as leading indicators of the capacity for knowledge-creation and innovation in various domains. The changing characteristics of this population over time—including the increased representation of women, minorities, and foreign nationals; emergence of new fields of study; time it takes to complete doctoral study; expansion of the postdoctoral pool; reduced academic employment opportunities after graduation—reflect political, economic, social, technological, and demographic trends and events. Understanding the connections between these larger forces and the number and characteristics of doctorate recipients is necessary to make informed improvements in this country's doctoral education system.

Doctorate recipients begin careers in large and small organizations, teach in universities, and start new businesses. Doctoral education develops human resources that are critical to a nation's progress—scientists, engineers, researchers, and scholars who create and share new knowledge and new ways of thinking that lead, directly and indirectly, to innovative products, services, and works of art. In doing so, they contribute to a nation's economic growth, cultural development, and rising standard of living.

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1. Who earns a U.S. doctorate?

Each new cohort of doctorate recipients augments the supply of prospective scientists, engineers, researchers, and scholars. Data on the changing demographic composition of these cohorts reveal underutilized groups.

Overall trends

The number of research doctorates awarded since the inception of the survey in 1958 shows an upward trend over time—average annual growth of 3.4%—punctuated by a few single-year declines and two periods (1974–78 and 2001–02) of multi-year declines.

The number of science and engineering (S&E) doctorates has nearly doubled since the mid-1970s, whereas the number of doctorates in non-S&E fields has not grown over that period. In 2011, almost three-quarters of all research doctorates were awarded in S&E fields. The number of doctorates awarded in S&E fields increased 4.0% from 2010 to 2011, and the number of doctorates awarded in non-S&E fields declined 3.1% during the same period (the decline in non-S&E doctorates awarded was attributable to the reclassification of most Doctor of Education degrees as professional rather than research doctorates; see the online technical appendix to this report for more information).

Citizenship

In 1991, 32% of all S&E doctorates were awarded to temporary visa holders. Since then, the growth in numbers of S&E doctorates awarded to temporary visa holders has nearly equaled the growth in doctorates awarded to U.S. citizens and permanent residents. The proportion of S&E doctorate recipients holding temporary visas peaked at 41% in 2007 and has declined to 36% in 2011.

Temporary visa holders are more likely to earn a doctorate in an S&E field than are doctorate recipients who are U.S. citizens or permanent residents. Over the period 2001 to 2011, 84% of the doctorates earned by temporary visa holders were in S&E fields, compared with 63% of doctorates earned by U.S. citizens and permanent residents.

Countries/economies of foreign citizenship

Ten countries accounted for 70% of the doctorates awarded to temporary visa holders from 2001 to 2011, and the top three—China, India, and South Korea—accounted for half. The share of doctorates awarded to temporary visa holders from these three countries jumped from 43% in 2001 to 53% in 2006 and remained near that higher level through the remainder of the period.

Sex

Citizenship

Women are becoming increasingly prevalent with each new cohort of doctorate recipients. The share of doctorates awarded to women increased from 37% in 1991 to 46% in 2011.

Women earned a majority of all doctorates awarded to U.S. citizens and permanent residents each year since 2002, and they earned one-third of all doctorates awarded to temporary visa holders over that period. The total number of male doctorate recipients increased every year from 2002 until 2009, with most of this growth attributable to increasing numbers of male temporary visa holders. The number of male and female doctorate recipients increased in 2011 after a single-year decline in 2010, among both temporary visa holders and U.S. citizens and permanent residents.

Field of study

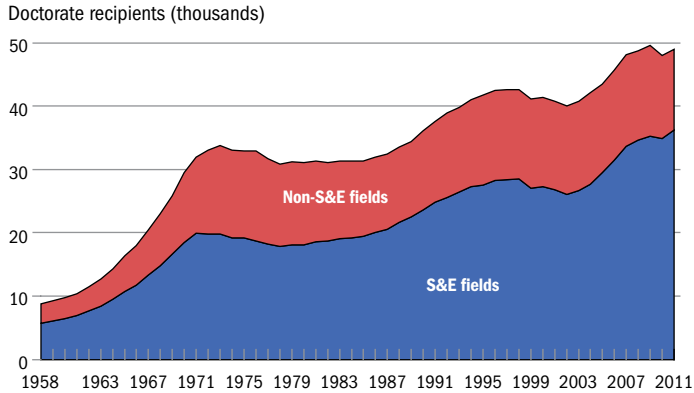
Most of the growth in the number of doctorates earned by women has been in S&E fields. Women earned 42% of S&E doctorates awarded in 2011, up from 30% in 1991. Doctorates in S&E fields account entirely for the increase in doctorates earned by men overall, as the number of men earning doctorates in non-S&E fields fell over that period. The numbers of male and female doctorate recipients in S&E fields both grew in 2011, whereas the numbers of male and female doctorate recipients in non-S&E fields both declined.

Race and ethnicity

The share of doctorates earned by underrepresented minority U.S. citizens and permanent residents continues to grow, owing to a 67% increase in the number of doctorates awarded to blacks or African Americans over the past 20 years and a more than doubling of Hispanic or Latino doctorate recipients. The proportion of doctorates awarded to blacks has risen from 4.2% in 1991 to 6.1% in 2011, and the proportion awarded to Hispanics or Latinos has risen from 3.2% in 1991 to 6.3% in 2011.

1A

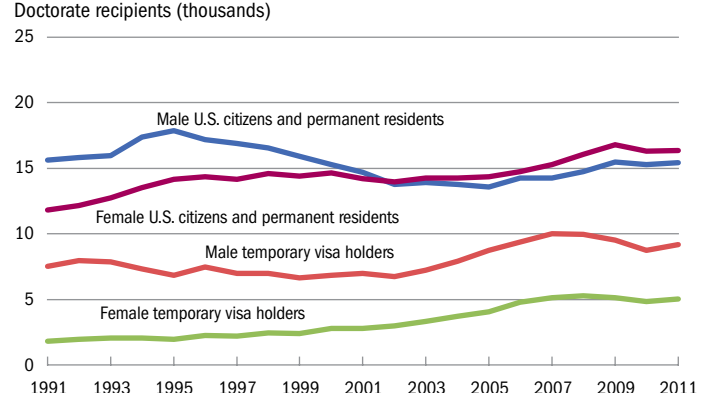
Doctorates awarded by U.S. colleges and universities: 1958-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: table 1.

1D

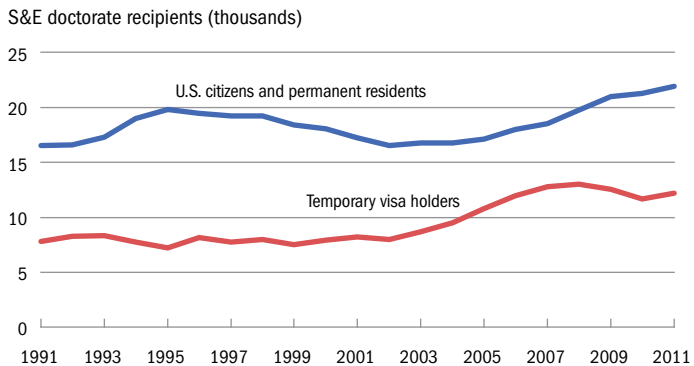
Sex and citizenship of U.S. doctorate recipients: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 20, 21.

1B

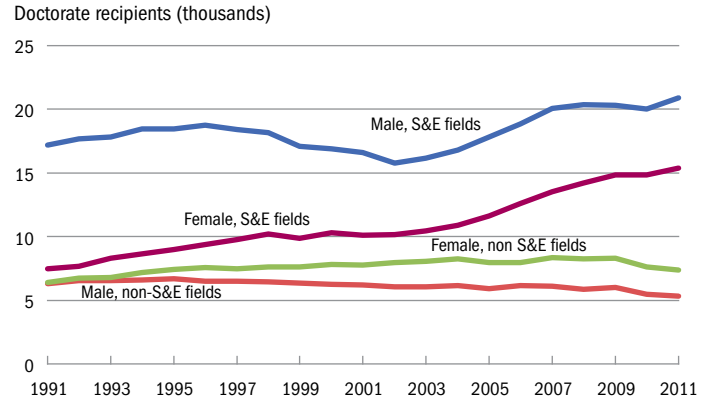
Doctorates awarded in science and engineering fields, by citizenship: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: table 18.

1E

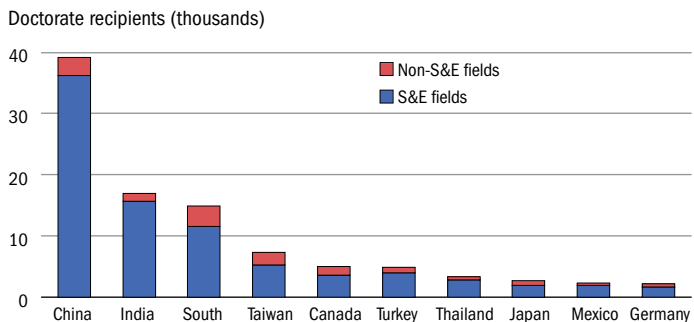
Sex and field of study of U.S. doctorate recipients: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 13, 14, 16.

1C

Top 10 countries/economies of foreign citizenship for U.S. doctorate recipients: Total, 2001-11

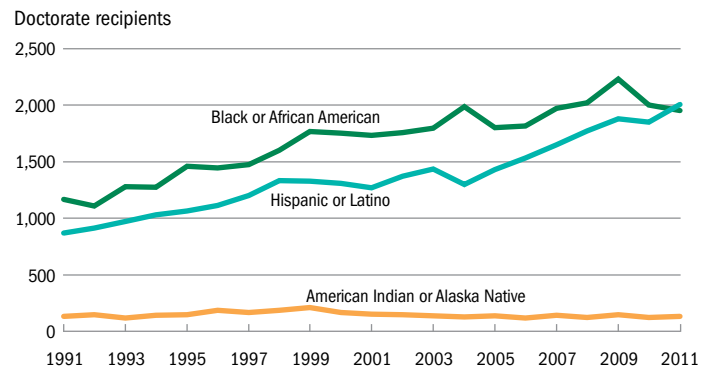


NOTE: China includes Hong Kong.

Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 25, 26.

1F

Doctorates earned by members of U.S. underrepresented minority groups: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 19, 22, 23, 24.

2. Which fields attract students?

As researchers expand their understanding of the world, new fields of study emerge and existing fields change. Observing which fields of study are attracting growing proportions of students can provide early insight into where future research breakthroughs may occur.

Field trends

Science and engineering

Doctorates in science and engineering (S&E) fields, particularly in life sciences, represent a growing share of all doctorates awarded. Overall, S&E doctorates accounted for 74% of all doctorates awarded in 2011, up from 66% 10 years earlier. The relative share of doctorates awarded in social sciences has declined slightly over the past decade, even though the number of social sciences doctorates was larger in 2011 than it was in 2001.

Non-science and engineering

The number of doctorates awarded in education and humanities has declined over the past decade, leading to a decline in the relative share of doctorates in those fields. The relative share of doctorates in other non-S&E fields increased slightly from 2001 to 2011.

Temporary visa holders

In all broad fields of study, the share of doctorates awarded to temporary visa holders is larger today than it was 20 years ago. In 2011, temporary visa holders represented the majority of doctorate recipients in engineering and over 40% of those in the physical sciences.

Minority U.S. citizens and permanent residents

Among minority U.S. citizens and permanent residents, doctorate recipients of different racial/ethnic backgrounds tend to be concentrated in different fields of study. In 2011, Asians were the largest U.S. minority population in life sciences, physical sciences, and engineering; blacks or African Americans were the largest U.S. minority population in education; Hispanics or Latinos earned more doctorates in humanities and social sciences than any other minority group. Asians and blacks or African Americans earned similar numbers of doctorates in other non-S&E fields in 2011.

Women

Field of study

Women's share of doctorates awarded has grown over the past two decades in all broad fields of study. In 2011, women earned the majority of doctorates awarded in every broad field except physical sciences and engineering.

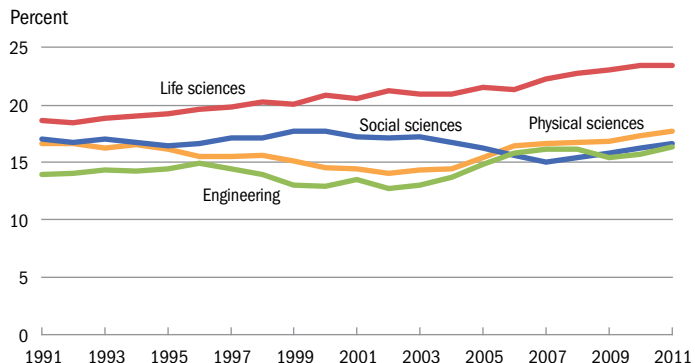
Although women earn less than 30% of the doctorates awarded in both physical sciences and engineering, their numbers are increasing rapidly in those fields. The number of women earning doctorates in physical sciences increased 70% from 2001 to 2011, and the number of female engineering doctorate recipients almost doubled over the decade.

Growing fields

The fastest growing subfields of doctoral study for women over the past 10 years have been within the physical sciences (led by computer and information sciences) and engineering.

2A

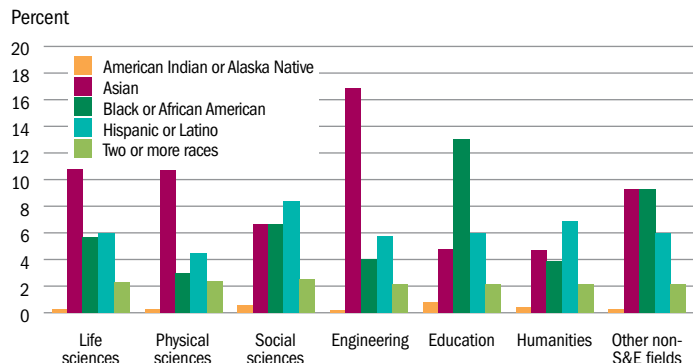
Doctorates awarded in science and engineering fields of study: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 4, 7, 12, 15.

2D

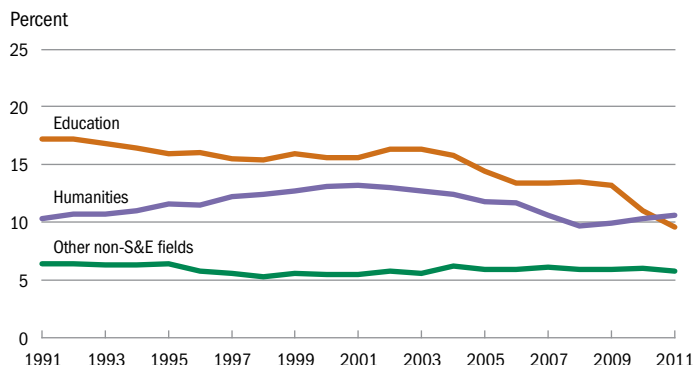
Doctorates awarded to minority U.S. citizens and permanent residents, by race/ethnicity and field of study: 2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 23, 24.

2B

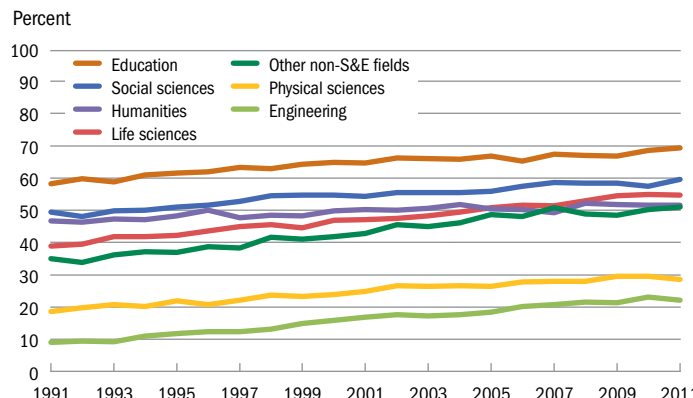
Doctorates awarded in non-science and engineering fields of study: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 4, 8, 12, 15.

2E

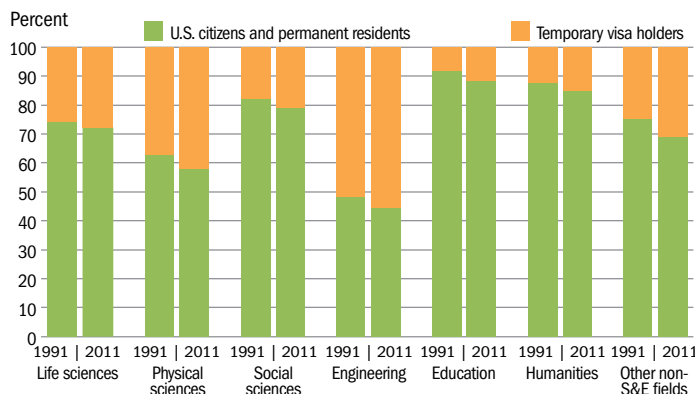
Doctorates awarded to women, by field of study: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 13, 14, 17.

2C

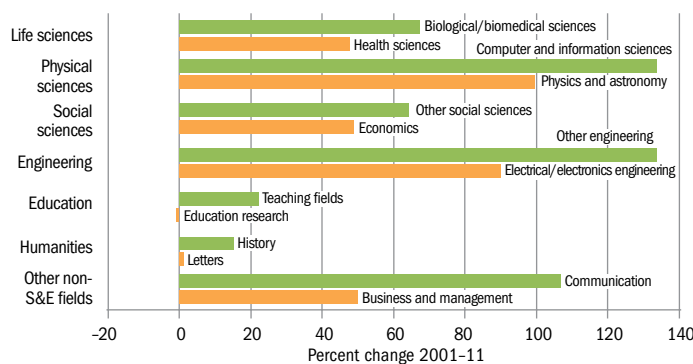
Doctorates awarded, by citizenship and field of study: 1991 and 2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: table 18.

2F

Top fields of study for female doctorate recipients, by broad field and select subfield: 2001-11



Doctorate Recipients from U.S. Universities 2011. Related detailed data: table 17.

3. What influences the path to the doctorate?

Some paths to the doctoral degree are less traveled and some are more difficult to navigate, owing to a variety of influences that shape doctoral study. These paths may lead to different postgraduate destinations.

Parental education

Overview

The parents of recent doctorate recipients are better educated than the parents of those who preceded them. The share of doctorate recipients from families in which neither parent has earned more than a high school degree is declining, and the proportion of families in which at least one parent has earned a bachelor's degree or higher continues to climb.

By race and ethnicity

A pattern of rising educational attainment for parents of recent doctorate recipients over the past 20 years has been observed across all racial/ethnic groups. Nonetheless, doctorate recipients from underrepresented minority groups are less likely to have at least one parent with a bachelor's degree than are Asian and white doctorate recipients.

As of 2011, about half of American Indian or Alaska Native, black or African American, and Hispanic or Latino doctorate recipients belonged to families in which neither parent had been awarded a college degree. In contrast, nearly three-fourths of Asian and white doctorate recipients came from families with at least one college-educated parent, and nearly half of Asian and white doctorate recipients had at least one parent with an advanced degree.

Institution

Science and engineering

In all broad science and engineering (S&E) fields of study, the majority of doctoral degrees are awarded by research universities classified as being “very high research activity” institutions according to the Carnegie Foundation's classification of institutions of higher education (2010 revision).

The proportion of doctorates awarded by the “very high research activity” universities decreased from 1991 to 2001 in all broad S&E fields of study, with the largest declines in life sciences and physical sciences. The downward trend has continued in all broad S&E fields since 2001, although most of this latter decline has occurred since 2008.

Non-science and engineering

The majority of doctoral degrees in non-S&E fields of study are awarded by universities classified as being “very high research activity” institutions. The proportion of doctorates awarded by the “very high research activity” institutions decreased in all three broad non-S&E fields from 1991 to 2001, with education showing the sharpest decline. The gradual downward trend has continued since 2001 for humanities, but education and other non-S&E fields have shown an increase over the past decade in the proportion of doctorates awarded by “very high research activity” institutions. (The large increase in education doctorates awarded by “very high research activity” institutions in 2011 is attributable to the reclassification of the doctor of education degree programs.)

Time to degree

Science and engineering

The time between entering graduate school and earning the doctorate has declined in all S&E fields of study over the past 15 years, with life sciences showing the largest decline in median time to degree (1.0 years). Since 2006, however, there has been little change in the time to degree of doctorate recipients in S&E fields. In particular, the time to degree in physical sciences has remained constant (6.7 years) since 1998.

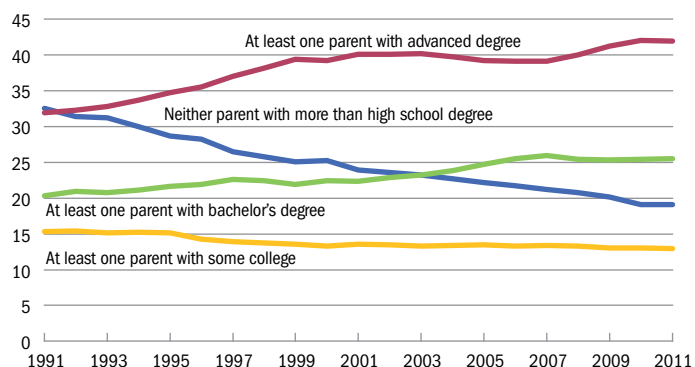
Non-science and engineering

The time between entering graduate school and earning the doctorate has declined in all non-S&E fields of study over the past 15 years, particularly in education (a decline in median time to degree of 4.2 years). Despite drops in the time it takes to earn a non-S&E doctorate, it continues to take longer to complete doctorates in these fields than it does to complete doctoral training in S&E fields.

3A

Highest parental educational attainment: 1991-2011

Percent doctorate recipients

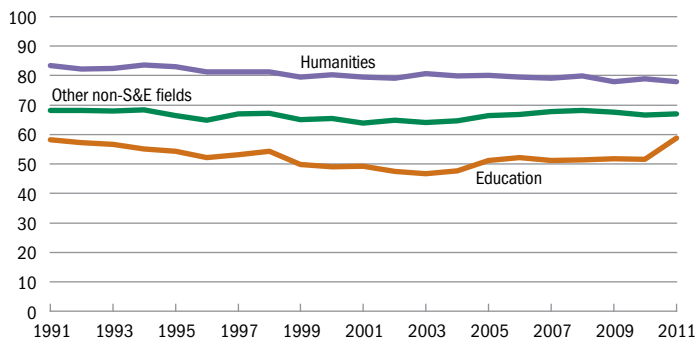


Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 33, 34.

3D

Doctorates awarded by "very high research activity" institutions in non-science and engineering fields of study: 1991-2011

Percent

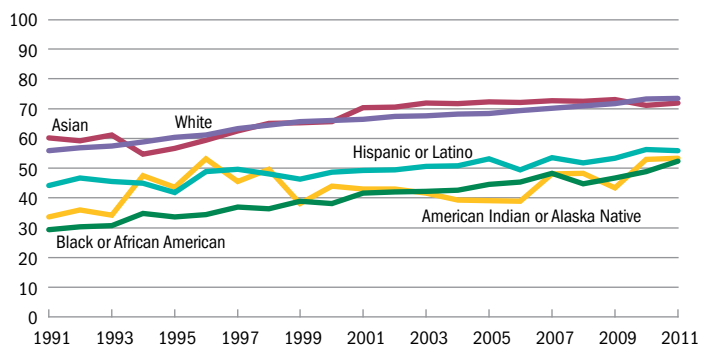


Doctorate Recipients from U.S. Universities 2011. Related detailed data: table 11.

3B

Parental educational attainment, by race/ethnicity: 1991-2011

Percent having at least one parent with a bachelor's degree or higher



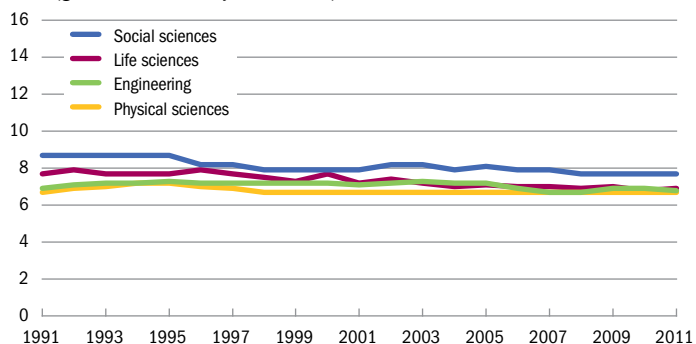
NOTE: Percentages based on doctorate recipients who are U.S. citizens or permanent residents.

Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 33, 34.

3E

Median time to degree in science and engineering fields of study: 1991-2011

Years (graduate school entry to doctorate)

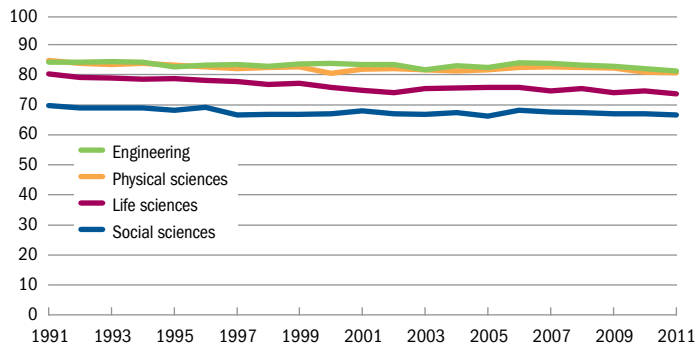


Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 31, 32.

3C

Doctorates awarded by "very high research activity" institutions in science and engineering fields of study: 1991-2011

Percent

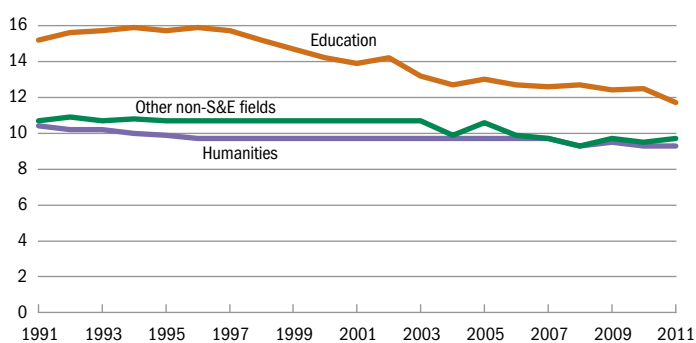


Doctorate Recipients from U.S. Universities 2011. Related detailed data: table 11.

3F

Median time to degree in non-science and engineering fields of study: 1991-2011

Years (graduate school entry to doctorate)



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 31, 32.

4. How do graduates pay for doctoral education?

The level and type of financial support available to doctoral students affect how long it will take them to complete their degrees and, sometimes, whether they will complete the degree at all. These factors also influence the enrollment decisions of the next generation of prospective graduate students.

Sources of financial support

Overview

Fellowships/grants and research assistantships are the most important sources of financial support for a growing proportion of doctoral students. Compared with years past, fewer doctoral students now rely primarily on their own resources—loans, personal savings, personal earnings, and spouse/partner/family contributions—to finance their doctoral studies.

By field of study

In 2011, fellowships/grants were the most common primary source of support reported by doctorate recipients in the life sciences. Research assistantships were the dominant source in physical sciences and in engineering. Nearly equal proportions of social sciences doctorate recipients reported fellowships/grants, teaching assistantships, and their own resources as their primary source of financial support. Teaching assistantships and fellowships/grants were the primary sources of support for doctoral students in humanities. Doctoral students in education fields were most likely to rely on their own resources.

Availability of financial resources

One measure of the availability of financial support to graduate students is the rate of self-support—the proportion of students who rely primarily on their own resources to complete their doctoral studies. The self-support rate has been declining in all fields of study since 2001, indicating that other sources of financial support are available for financing doctoral education.

Doctorate recipients in life sciences, physical sciences, and engineering fields have had the lowest self-support rates over the past 10 years. Those in education fields have had the highest.

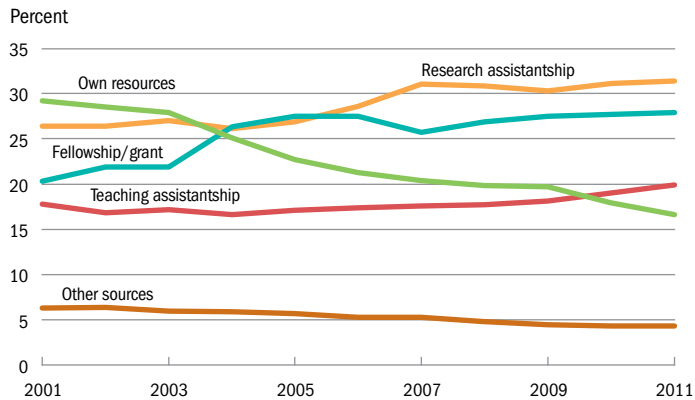
Education-related debt

The amount of education-related debt incurred by doctorate recipients during graduate school is another indicator of the availability of financial support. In 2011, more than two-thirds of doctorate recipients in life sciences and more than three-quarters of those in physical sciences and engineering fields had no debt related to their graduate education when they were awarded the doctorate. In social sciences, humanities, education, and other non-science and engineering (non-S&E) fields about one-half of doctorate recipients had no education-related debt at the time of doctorate award.

In all fields of study roughly 7% to 10% of doctorate recipients had an education-related debt of \$10,000 or less at the time they graduated. The shares of doctoral students with education-related debt burdens over \$30,000 were greatest in the social sciences (32%), education (29%), humanities (26%), and other non-S&E fields (26%).

4A

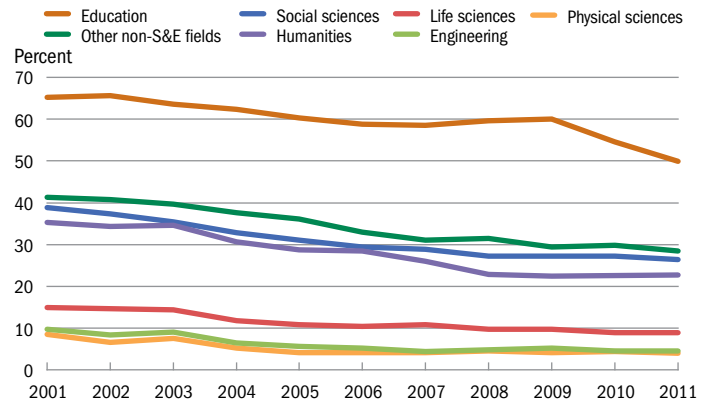
Primary source of financial support: 2001-11



Doctorate Recipients from U.S. Universities 2011. Related detailed data: table 35.

4C

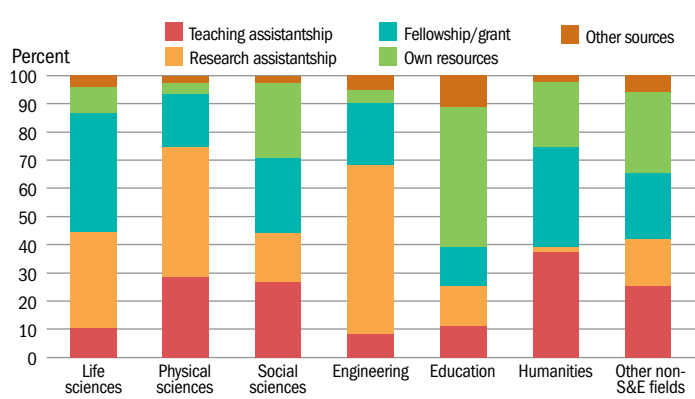
Self-support rate, by field of study: 2001-11



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 35, 36, 37.

4B

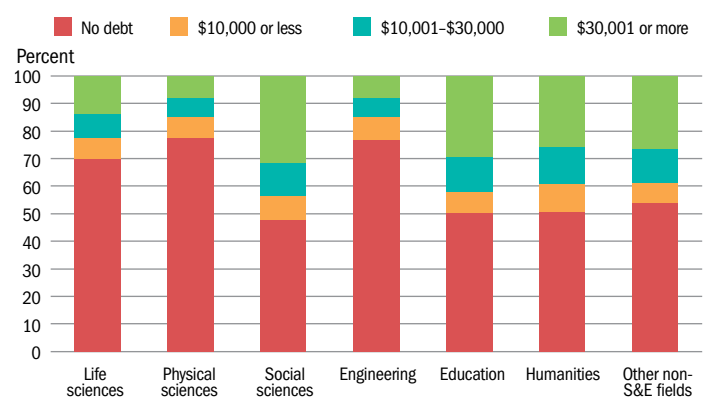
Primary source of financial support, by field of study: 2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 35, 36, 37.

4D

Graduate education-related debt, by field of study: 2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 38, 39, 40.

5. What are the postgraduation trends?

A graduate's first position after earning the doctoral degree may reflect broad economic conditions and can shape later career opportunities and choices. Over the longer term, the early career patterns of doctorate recipients may influence the decisions of future generations of students considering careers as scientists, engineers, researchers, and scholars.

Job market

Science and engineering

At any given time, the job market will be better for new doctorate recipients in some fields than in others, although all fields tend to follow a similar cyclical pattern that generally reflects overall economic trends.

The proportion of doctorate recipients with definite commitments for employment or postdoctoral (postdoc) study fell in every broad science and engineering (S&E) field in 2011, the second consecutive year of decline. In every broad S&E field, the proportion of 2011 doctorate recipients who reported definite commitments for employment or postdoc study was at or near its lowest level of the past 10 years, 3 to 10 percentage points lower than the proportion of 2001 doctorate recipients reporting such commitments.

Non-science and engineering

The proportion of doctorate recipients with definite commitments for employment or postdoc study fell in every broad non-S&E field of study in 2011, the third consecutive year of decline in each of those fields. The proportion of doctorate recipients in humanities reporting definite commitments reached its lowest point since 1997; the proportions of doctorate recipients in education and other non-S&E fields with definite commitments were lower than they have been at any point in the past 2 decades. The low point for each broad non-S&E field was 7 to 10 percentage points below that field's peak rate of definite commitments achieved during the 20-year period.

First postgraduate position

Historically, postdoc positions have been a customary part of the early career paths of doctorate recipients in the life sciences and physical sciences; such positions are becoming increasingly prevalent in engineering and social sciences fields as well. In 2011, more than two-thirds of doctoral graduates in life sciences took postdoc positions immediately after graduation, and over half of all S&E doctorate recipients did so. The proportion of engineering doctorate recipients accepting postdoc positions has increased sharply, climbing from 19% in 2001 to 41% in 2011.

Median salaries

In 2011 doctorate recipients who had definite commitments in the United States in the coming year reported annual salaries that varied according to their field of study and the type of position to which they committed.

Doctorate recipients who take postdoc positions report similar salaries regardless of their field of study. In all broad fields, postdoc salaries are lower than salaries reported by doctorate recipients entering non-postdoc employment in industry and in academe. Academic salaries lag behind industry salaries in all broad fields except humanities; the disparity is particularly striking in the physical sciences, where industry salaries are nearly twice as large as academic salaries. The two fields with the highest academic salaries, other non-S&E fields and engineering, also rank highly in terms of industry salary.

Postgraduation location

Science and engineering

Over the past 20 years, temporary visa holders earning doctorates in S&E fields have been increasingly likely to stay in the United States immediately following graduation, a measure referred to as the "stay rate."

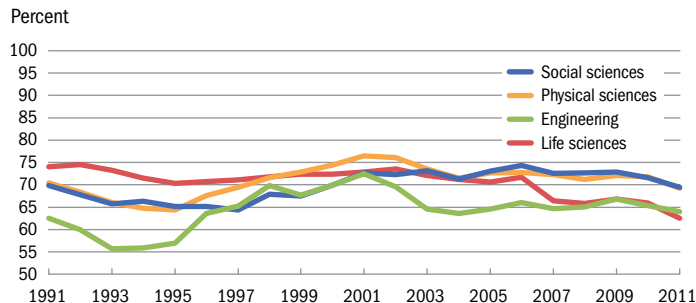
The stay rate for S&E doctorate recipients dipped slightly in the 2 years following September 11, 2001, climbed again, and then declined since 2008 for doctorate recipients in all broad S&E fields of study. Stay rates are highest in fields where temporary visa holders are most prevalent: engineering, physical sciences, and life sciences.

Non-science and engineering

The stay rate for non-S&E doctorate recipients climbed from 2001 to 2008 but dropped sharply since then, particularly among doctorate recipients in education and other non-S&E fields. Over the past decade, the stay rates for all non-S&E fields were substantially lower than the stay rates for all S&E fields except social sciences.

5A

Definite commitments at doctorate award, by science and engineering fields of study: 1991-2011

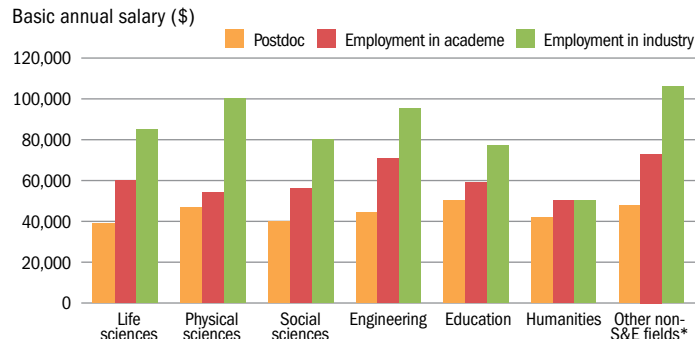


NOTE: Definite commitment refers to a doctorate recipient who is either returning to pre-doctoral employment or has signed a contract (or otherwise made a definite commitment) for employment or a postdoc position in the coming year.

Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 42, 43.

5D

Median basic annual salary of doctorate recipients with definite commitments in the United States, by position type and field of study: 2011

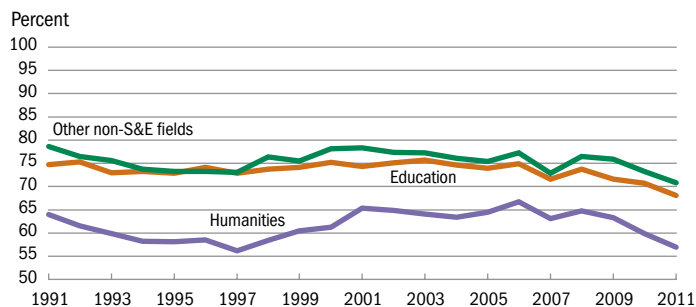


*Includes business management and administration.

Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 48, 49.

5B

Definite commitments at doctorate award, by non-science and engineering fields of study: 1991-2011

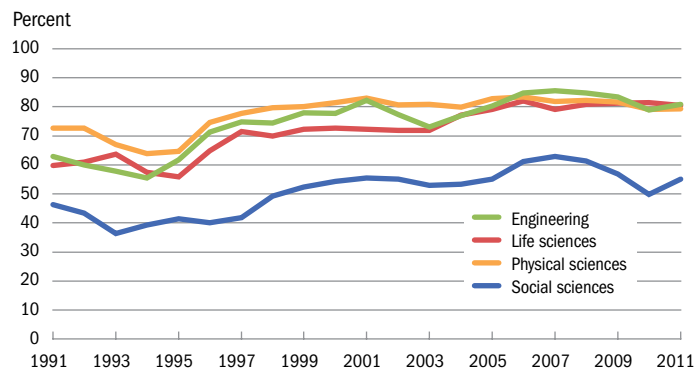


NOTE: Definite commitment refers to a doctorate recipient who is either returning to pre-doctoral employment or has signed a contract (or otherwise made a definite commitment) for employment or a postdoc position in the coming year.

Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 42, 43.

5E

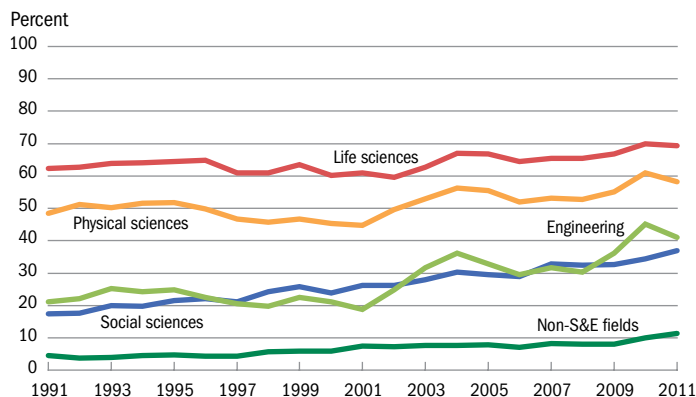
Stay rate of temporary visa holders with definite U.S. commitments, by science and engineering fields of doctoral study: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 51, 52, 53.

5C

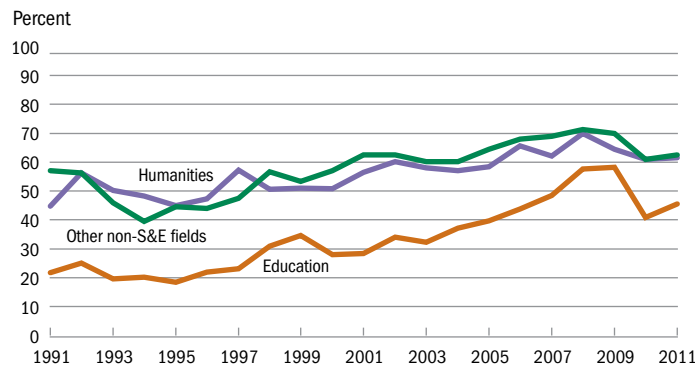
Postdoc rate, by field of study: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: tables 44, 52.

5F

Stay rate of temporary visa holders with definite U.S. commitments, by non-science and engineering fields of doctoral study: 1991-2011



Doctorate Recipients from U.S. Universities 2011. Related detailed data: table 52.

Glossary

Basic annual salary. Annual salary to be earned in the next year, not including bonuses or additional compensation for summertime teaching or research.

Definite commitment. A doctorate recipient who is either returning to predoctoral employment or has signed a contract (or otherwise made a definite commitment) for employment or a postdoc position in the coming year.

Definite employment commitment. A doctorate recipient with a definite commitment for employment in a non-postdoc position in the coming year.

Field of study. The Survey of Earned Doctorates (SED) collects data on 302 fields of doctoral study. For reporting purposes, these fields are grouped into 35 major fields and are further aggregated into seven broad fields: life sciences, physical sciences, social sciences, engineering, education, humanities, and other non-S&E fields. See table A-6 in the technical appendix to this report for a listing of the major fields within each broad field category. See the survey questionnaire for a full listing of the fine fields of study in 2011.

Graduate education-related debt. The amount of debt owed by a doctorate recipient at the time the doctorate is awarded that is directly related to graduate education.

Non-S&E. A grouping of broad fields of study that includes education, humanities, and other non-science and engineering fields.

Parental educational attainment. The highest level of education attained by either parent of a doctorate recipient.

Postdoc position. A temporary position primarily for gaining additional education and training in research for doctorate recipients.

Postdoc rate. The proportion of doctorate recipients who have definite commitments for a postdoc position among all doctorate recipients with definite postdoctoral commitments.

Race and ethnicity. Doctorate recipients who report Hispanic or Latino heritage, regardless of racial designation, are counted as Hispanic or Latino. American Indian or Alaska Native, Asian, black or African American, and white doctorate recipients are counted in their respective racial groups if they report one race and do not report Hispanic or Latino ethnicity. Beginning in 2001, respondents who are not Hispanic or Latino and who indicate more than one race are reported in the category “two or more races.” Data for this category were not collected before 2001. Before 2001, respondents who are not Hispanic or Latino and who indicate more than one race were categorized as “other or unknown.” For 2001 and later data, the “other or unknown” category includes doctorate recipients who did not respond to the Hispanic or Latino ethnicity item, doctorate recipients who indicated that they were not Hispanic or Latino and who did not respond to the race item, and Native Hawaiian and Other Pacific Islanders. For 2000 and earlier data, Native Hawaiian and Other Pacific Islanders are counted in the Asian group. For the purposes of this report, the term “underrepresented minority” refers to the American Indian or Alaska Native, black or African American, and Hispanic or Latino groups.

Research doctorate. A doctoral degree that is oriented toward preparing students to make original intellectual contributions in a field of study. Research doctorates require the completion of a dissertation or equivalent project and are not primarily intended for the practice of a profession. In this report, the terms “doctorate” and “doctoral degree” are used to represent any of the research doctoral degrees covered by the survey. Professional doctorates, such as the MD, DDS, JD, and PsyD, are not covered by the SED.

S&E. A grouping of broad fields of study that includes science (life sciences, physical sciences, social sciences) and engineering fields.

Self-support rate. The proportion of doctorate recipients who report “own resources” as the primary source of financial support during their doctoral education.

Sources of financial support. Sources of financial support are grouped into the following five categories: fellowships (includes scholarships and grants), teaching assistantships, research assistantships (includes traineeships, internships, clinical residencies, and other assistantships), own resources (includes loans, personal savings, personal earnings, and earnings/savings of spouse, partner, or family), and other (includes employer reimbursements and foreign [non-U.S.] support).

Stay rate. The proportion of doctorate recipients with temporary visas who have definite commitments for employment or a postdoc position in the coming year and who indicated the location of their commitment is in the United States.

Time to degree. The median values of the time elapsed from the start of graduate school to completion of the doctoral degree. In addition to this measure, a second measure of time-to-degree is also reported in the data tables: median values of the time elapsed from completion of the bachelor’s degree to completion of the doctorate.

Data Source

THE SURVEY OF EARNED DOCTORATES is the sole data source for *Doctorate Recipients from U.S. Universities: 2011*. The principal elements of the 2011 SED data collection are described below. More detailed information and related technical tables are available in the technical appendix to this report, available online at www.nsf.gov/statistics/sed/.

Survey eligibility. The SED collects information on research doctorate recipients only. Research doctorates require the completion of a dissertation or equivalent project, are oriented toward preparing students to make original intellectual contributions in a field of study, and are not primarily intended for the practice of a profession. The 2011 SED recognized 18 distinct types of research doctorates. In 2011, 98% of research doctorate recipients earned the PhD.

Survey universe. The population eligible for the 2011 survey consisted of all individuals who received a research doctorate from a U.S. academic institution in the 12-month period from 1 July 2010 to 30 June 2011. The total universe consisted of 49,010 persons in 412 institutions that conferred research doctorates in academic year 2011.

Data collection. Survey instruments were mailed to institutional coordinators at each doctorate awarding institution. The institutional coordinators distributed the survey forms to individuals receiving a research doctorate, collected the forms, and returned them to the survey contractor for editing and processing. Data were also collected using Web and telephone versions of the survey. Respondents who did not complete critical survey items were contacted by mail to request response to these items. The National Opinion Research Center at the University of Chicago (NORC) currently conducts the SED under contract to the National Science Foundation.

Survey response rates. In 2011, 93% of research doctorate recipients completed the survey instrument. Limited records (field of study, doctoral institution, and sex) are constructed for nonrespondents from administrative records of the university—commencement programs, graduation lists, and other public records—and are included in the reported total of doctorate recipients. Response rates for 2001–11 are provided in the technical appendix.

Recent data changes. After a multiyear review of Doctor of Education (EdD) degree programs participating in the SED, 77 programs were reclassified from research doctorate to professional doctorate in 2010 and another 66 programs were reclassified in 2011. No additional reclassifications of EdD degree programs are planned. SED data are no longer being collected from graduates earning degrees from the reclassified EdD programs, and this has affected the reporting of the number of doctorates awarded by sex, citizenship, and racial/ethnic category. Several figures in this report show a decline in number of degrees awarded from 2009 to 2011 (in particular, see figures 1D and 1F in the “Who earns a U.S. doctorate?” section and figure 2B in the “Which fields attract students?” section). Readers should note that the declines from 2009 to 2010 and from 2010 to 2011 are at least partly attributable to the EdD reclassification.

Further Reading

FOR AN OVERARCHING VIEW of long-term trends in U.S. doctoral education, as reflected in SED data, please see *U.S. Doctorates in the 20th Century* (NSF 06-319, October 2006, <http://www.nsf.gov/statistics/nsf06319/>). Summary reports for previous years (*Doctorate Recipients from U.S. Universities: Summary Report*), available at www.nsf.gov/statistics/doctorates/, provide additional context.

Other publications from the National Science Foundation use SED data to report on focused topics. Publications that relate to the topics covered in *Doctorate Recipients from U.S. Universities: 2011* are listed below, by relevant section.

Who earns a U.S. doctorate? and

Which fields attract students?

Numbers of Doctorates Awarded Continue to Grow in 2009; Indicators of Employment Outcomes Mixed (NSF 11-305, November 2010, <http://www.nsf.gov/statistics/infbrief/nsf11305/>).

Interdisciplinary Dissertation Research (NSF 10-316, March 2010, <http://www.nsf.gov/statistics/infbrief/nsf10316/>).

Numbers of U.S. Doctorates Awarded Rise for Sixth Year, but Growth Slower (NSF 10-308, November 2009, <http://www.nsf.gov/statistics/infbrief/nsf10308/>).

2007 Records Fifth Consecutive Annual Increase in U.S. Doctoral Awards (NSF 09-307, November 2008, <http://www.nsf.gov/statistics/infbrief/nsf09307/>).

What influences the path to the doctorate?

Role of HBCUs as Baccalaureate-Origin Institutions of Black S&E Doctorate Recipients (NSF 08-319, August 2008, <http://www.nsf.gov/statistics/infbrief/nsf08319/>).

Baccalaureate Origins of S&E Doctorate Recipients (NSF 08-311, July 2008, <http://www.nsf.gov/statistics/infbrief/nsf08311/>).

Time to Degree of U.S. Research Doctorate Recipients (NSF 06-312, March 2006, <http://www.nsf.gov/statistics/infbrief/nsf06312/>).

What are the postgraduation trends?

International Mobility and Employment Characteristics among Recent Recipients of U.S. Doctorates (NSF 13-300, September 2012, <http://www.nsf.gov/statistics/infbrief/nsf13300/>).

Emigration of U.S.-Born S&E Doctorate Recipients (NSF 04-327, June 2004, <http://www.nsf.gov/statistics/infbrief/nsf04327/>).

Plans for Postdoctoral Research Appointments among Recent U.S. Doctorate Recipients (NSF 04-308, March 2004, <http://www.nsf.gov/statistics/infbrief/nsf04308/>).

Interstate Migration Patterns of Recent Science and Engineering Doctorate Recipients (NSF 02-311, February 2002, <http://www.nsf.gov/statistics/nsf02311/>).

Online Resources

AN INTERACTIVE VERSION of the printed report and its related resources, described below, are available on the Web at www.nsf.gov/statistics/sed/.

Data tables. Data on the full range of survey items collected by the 2011 SED are presented in 70 detailed statistical tables. Figures in this report reference these related detailed data by table number. The full set of tables is available for download, either as Excel files or in portable document format (PDF).

Figures. The figures illustrating each theme can be downloaded as PowerPoint presentation slides, as JPEG images, or as Excel files, together with the figure's source data. All three formats are available from the "Download" tab associated with each figure.

Supporting data. Data supporting each figure in the report is available for download in Excel format.

Survey questionnaire. The questionnaire for the 2011 SED is linked to the online report.

Technical appendix. The technical notes provide more detail on how SED collects data on recipients of research doctorates. The appendix includes technical tables that provide such information as the types of research doctoral degrees included in the SED, survey response rates over time, and details on field aggregations.

Acknowledgments

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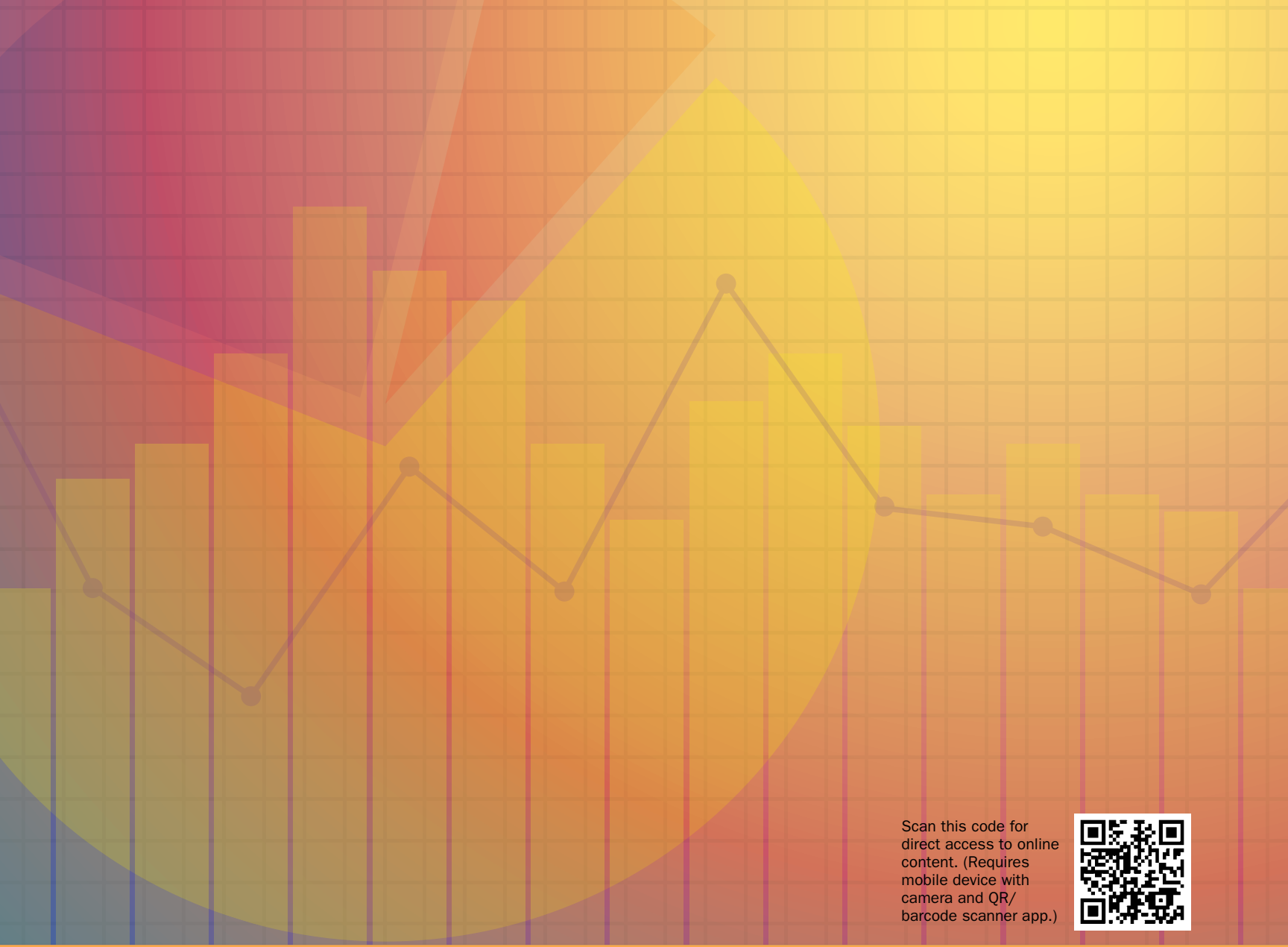
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National Science Foundation, National Center for Science and Engineering Statistics. 2012. *Doctorate Recipients from U.S. Universities: 2011*. Special Report NSF 13-301. Arlington, VA. Available at <http://www.nsf.gov/statistics/sed/>.

The complete *Doctorate Recipients from U.S. Universities: 2011* report, including detailed data tables, interactive graphics, technical notes, and other online resources, is available on the Web at www.nsf.gov/statistics/sed/.

To obtain printed copies of the *Doctorate Recipients from U.S. Universities: 2011* digest (NSF 13-301), use NSF's online publication request form, <http://www.nsf.gov/publications/orderpub.jsp>, or call 703-292-7827.

www.nsf.gov/statistics/sed/



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