

# Science and Engineering Degrees, by Race/Ethnicity of Recipients: 2005–15

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## Technical Notes

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The data reported in this publication come from two federal surveys. Bachelor's and master's degree data were collected from institutions of higher education by the Integrated Postsecondary Education Data System (IPEDS) Completions Survey, conducted by the National Center for Education Statistics (NCES), Department of Education (ED). Data on research doctoral degrees were collected by the Survey of Earned Doctorates (SED), a universe survey of individual doctorate recipients conducted by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF). The SED is sponsored by six federal agencies: NCSES within NSF, the National Institutes of Health, ED, the National Endowment for the Humanities, the Department of Agriculture, and the National Aeronautics and Space Administration.

The technical details of each data source are described below in separate sections, followed by a common set of definitions of data elements salient to this report and by a summary of changes made to the structure of the current edition of this report.

### Completions Survey (Component of IPEDS)

#### *Survey Overview*

*Purpose.* The purpose of the IPEDS surveys is to collect institution-level data from providers of postsecondary education, including Title IV-eligible universities and colleges in the United States and outlying territories, as well as from institutions offering technical and vocational education beyond the high school level. The Completions component of IPEDS collects data each fall on recognized degree completions in postsecondary education programs by degree level (associate's, bachelor's, master's, and doctoral) and on other formal awards, both sub- and post-baccalaureate. These data are collected by race and ethnicity and gender of recipient and by fields of study, which are identified by 6-digit Classification of Instructional Programs (CIP) codes from the NCES publication *Classification of Instructional Programs* (<https://nces.ed.gov/ipeds/cipcode/>).

*Data collection authority.* Since 1993, completion of the IPEDS survey has been mandatory for all postsecondary institutions with a Program Participation Agreement with the Office of Postsecondary Education, ED: that is, institutions that participate in or are eligible to participate in any federal student financial assistance program authorized by Title IV of the Higher Education Act of 1965, as amended (20 USC 1094[a] [17]). For institutions not eligible to participate in Title IV programs, participation in IPEDS is voluntary.

*Survey contractor.* RTI International.

*Survey sponsor.* NCES, ED.

## ***Key Survey Information***

*Frequency.* Annual.

*Initial survey year.* IPEDS replaced the Higher Education General Information Survey (HEGIS) in 1986. HEGIS collected data from 1966 to 1986 from a more limited universe of approximately 3,400 institutions accredited at the college level by an association recognized by the Secretary of Education. The transition to the IPEDS program expanded the universe to include all institutions whose primary purpose was the provision of postsecondary education.

*Reference periods.* The reference period for each Completions Survey year covered by this report was the 12-month academic year period beginning 1 July and ending 30 June of the subsequent year. The most recent reference period is academic year 2015: 1 July 2014 to 30 June 2015.

*Response unit.* Institutions and administrative offices of institution systems.

*Sample or census.* Census. All components of IPEDS are mandatory for institutions that participate in any federal financial assistance program authorized by Title IV of the Higher Education Act of 1965, as amended.

*Population size.* In academic year 2015, a total of 7,389 Title IV postsecondary entities (7,310 institutions and 79 administrative offices), plus the four service academies, comprise the IPEDS universe. A total of 3,284 institutions reported one or more bachelor's or master's degree completions during the 2005–15 period.

*Sample size.* Not applicable.

## ***Survey Design***

*Target population.* All postsecondary institutions in the United States (50 states and the District of Columbia) and outlying territories. IPEDS defines a postsecondary institution as an organization that is open to the public and has the provision of postsecondary education or training beyond the high school level as one of its primary missions. This definition includes institutions that offer academic, vocational, and continuing professional education programs. The definition excludes institutions that offer only avocational (leisure) and adult basic education programs; institutions that are not open to the general public (training sites at prisons, military installations, corporations); hospitals that offer only internships or residency programs or that offer only training as part of a medical school program at a postsecondary institution; organizational entities providing only noncredit continuing education; schools whose only purpose is to prepare students to take a particular test, such as the certified public accountant or bar exams; and branch campuses of U.S. institutions in foreign countries.

*Sampling frame.* All postsecondary institutions consistent with the above definition may participate in IPEDS, but the majority of institutions represented are those that are eligible to participate in Title IV federal student financial aid programs. The resulting IPEDS universe includes institutions and branch campuses that offer a full program of study (not just courses); freestanding medical schools, as well as schools of nursing and schools of radiology, within hospitals; and schools offering occupational and vocational training with the intent of preparing students for work.

*Sample design.* The Completions Survey is a census of all postsecondary institutions in the United States and outlying territories that have a Program Participation Agreement with ED to

participate in Title IV federal student financial aid programs. Additional U.S. postsecondary institutions participate on a voluntary basis.

### ***Data Collection and Processing***

*Data collection.* Each institution appoints a keyholder who is responsible for ensuring that the institution's survey data are submitted correctly and completely. Many states or systems also appoint one or more IPEDS coordinators who are responsible for a specified group of institutions to ensure that all data were entered correctly. Web-based instruments of the IPEDS survey system have many features that improve the quality and timeliness of the data. Online data entry forms are tailored to each institution; when available, the customized forms contain preloaded data from previous years for easy reference and comparison. Once data are entered, keyholders run edit checks and resolve all errors before they submit the data. Once submitted, IPEDS staff conduct a final review and contact the institution's keyholder or coordinator to resolve remaining questions.

*Mode.* Starting in 2000, all component surveys of IPEDS utilize Web-based data collection.

*Response rates.* Because IPEDS is a mandatory survey, IPEDS response rates for each survey component are nearly 100%. For the Completions Survey, institutional response rates exceeded 99% each year between 2005 and 2015.

*Data editing.* Edit checks are built into the Web-based data collection instrument to detect major reporting errors. The system automatically generates percentages for many data elements and totals for each survey page. Based on these calculations, edit checks compare current responses to previously reported data. Edit checks can be run by the keyholder at any time during the collection, and all edit failures are required to be resolved before the keyholder can lock the data. Survey respondents are also provided with one or more context boxes for each survey component and are encouraged to use them to explain any special circumstances that might not be evident in their reported data.

*Imputation.* IPEDS applies a single imputation method (nearest-neighbor) for both unit and item nonresponse after all editing has been completed. For the Completions Survey, imputation for nonresponse is based on the previous year's response for an institution. For bachelor's and master's degree data, the percentage of degrees imputed rounds to zero.

*Weighting.* Weighting is not necessary because IPEDS is a census survey.

*Variance estimation.* IPEDS is a census survey with no weights calculated, so no variance estimation techniques were used.

### ***Survey Quality Measures***

*Sampling error.* Not applicable because IPEDS is a census survey.

*Nonsampling error.* IPEDS data are subject to such nonsampling errors as errors of design, reporting, processing, nonresponse, and imputation. To the extent possible, these errors are kept to a minimum by methods built into the survey procedures. The primary sources of nonsampling error in the Completions Survey component are differences between the NCES program taxonomy and taxonomies used by colleges, classification of double majors and double degrees, operational problems, and survey timing.

*Coverage error.* Coverage error in IPEDS is believed to be minimal. For institutions that are eligible for Title IV federal financial aid programs, coverage is almost 100%.

*Nonresponse error.*

- *Unit nonresponse.* Overall unit response rates for Title IV institutions and administrative units are high owing to the mandatory nature of IPEDS. By sector, the response rates are highest for public 4-year or higher institutions and lowest for private for-profit institutions, especially less-than-2-year institutions. Data collection procedures, including extensive email and telephone follow-up, also contribute to the high response rates.
- *Item nonresponse.* Most participating institutions provide complete responses for all items. Telephone and email follow-up are used to obtain critical missing items.
- *Imputation error.* Because response rates are so high, error due to imputation is considered small.

*Measurement error.* NCES strives to minimize measurement error in the IPEDS data by using various quality control and editing procedures. New questionnaire forms or items are field tested or reviewed by experts prior to use.

### ***Data Comparability***

*Changes in survey coverage and population.* Schools targeted as “possible adds” are identified from many sources, including information received from the institutions themselves. Institutions are added to the universe if they respond that they provide postsecondary education as defined in the survey. Institutions found to be closed or out-of-scope during data collection are deleted from the IPEDS universe. These deletions result from formal notification from the Office of Federal Student Aid (regarding Title IV status), the institution, or the IPEDS state coordinators. Included in the deletions are (1) duplicates of other institutions on the file; (2) institutions that closed or merged with another institution and, thus, are no longer legitimate institutions or branches; (3) institutions that no longer offer postsecondary programs; and (4) schools that do not conform to the IPEDS definition of an institution or branch.

*Changes in reporting procedures or classification.*

- *Classification of Instructional Programs.* Data on bachelor’s and master’s degrees by field of study were collected according to the CIP. The CIP provides a taxonomic scheme that supports the accurate tracking, assessment, and reporting of fields of study and program-completions activity. NCES has utilized several versions of CIP throughout the life of IPEDS. Each decennial edition of the CIP includes the addition of large numbers of new fields of study, the deletion of several fields, and the reorganization of fields across taxonomic categories. The *Science and Engineering Degrees, by Race/Ethnicity of Recipient: 2005–15* report uses the 2010 edition of the CIP, which is accessible online at <https://nces.ed.gov/ipeds/cipcode/>. Table A-1 reports the fields of study (with associated CIP codes) for which there was at least one bachelor’s or master’s degree awarded during the 2005–15 period.
- *Fields of study.* In analyzing Completions Survey data by field of study, users should note that the data are reported at the institution level and represent programs, but not schools, colleges, or divisions within institutions. For example, some institutions might have a few

computer and information science programs organized and taught within a business school. However, for IPEDS reporting purposes, the degrees are classified and counted within the computer and information science discipline.

- *Imputation.* Caution should be exercised when comparing institutions for which data have been imputed, since these data are intended for computing national totals and not intended to be an accurate portrayal of an institution's data.
- *Institutions.* Through 1995, IPEDS reports were concerned primarily with the subset of postsecondary institutions that were accredited at the college level by an agency recognized by the Secretary of Education. Early editions of the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* report presented counts of bachelor's and master's degrees from this same subset of institutions. Beginning with 1996 data, NCES categorized the postsecondary institutional universe on the basis of the degree-granting status as well as eligibility for Title IV federal financial aid (based on a list of eligible institutions maintained by ED's Office of Postsecondary Education), a change that expanded the types of institutions whose data appear in NCES reports to include for-profit and online institutions. NCES chose to retain the earlier, less inclusive institutional coverage criterion for the data in the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* report. As a result, beginning with the 1996 edition, the counts of bachelor's and master's degrees presented in the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* reports diverged from the degree counts reported by IPEDS.

Beginning with the 2002–12 edition, the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* report adopted the more inclusive institutional coverage of the IPEDS reports, and the bachelor's and master's degree counts from 2002 forward are based on the larger set of institutions. Consequently, the bachelor's and master's degree counts for 2005–06 appearing in the present edition of the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* report differ from the degree counts for those two years that are reported in the 1997–2006 edition of the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* report.

## **Survey of Earned Doctorates**

### ***Survey Overview***

*Purpose.* The SED collects data on the number and characteristics of individuals receiving research doctoral degrees from U.S. academic institutions.

*Data collection authority.* The information collected by the SED is solicited under the authority of the National Science Foundation Act of 1950, as amended, and the America COMPETES Reauthorization Act of 2010. The Office of Management and Budget control number for the 2015 SED survey cycle is 3145-0019, expiration date 30 June 2016.

*Survey contractor.* NORC at the University of Chicago.

*Survey sponsors.* The SED is sponsored by NCSES within NSF, NIH, ED, NEH, USDA, and NASA.

## ***Key Survey Information***

*Frequency.* Annual.

*Initial survey year.* Academic year 1957–58.

*Reference periods.* The reference period for each SED survey year covered by this report was the 12-month academic year period beginning 1 July and ending 30 June of the subsequent year. The most recent reference period is academic year 2015: 1 July 2014 to 30 June 2015.

*Response unit.* Individuals.

*Sample or census.* Census.

*Population size.* A total of 55,006 in the most recent (2015) academic year.

*Sample size.* Not applicable.

## ***Survey Design***

*Target population.* The population for the 2015 SED consists of all individuals receiving a research doctorate from a U.S. academic institution in the 12-month period beginning 1 July 2014 and ending 30 June 2015. A research doctorate is a doctoral degree that (1) requires completion of an original intellectual contribution in the form of a dissertation or an equivalent culminating project (e.g., musical composition) and (2) is not primarily intended as a degree for the practice of a profession. Recipients of professional doctoral degrees, such as MD, DDS, DVM, JD, DPharm, DMin, and PsyD, are not included in the SED.

The doctor of philosophy (PhD) constitutes the vast majority of research doctoral degrees. Of the 55,006 new research doctorates granted in 2015, 98.0% were PhDs. The next most frequently occurring type of research doctorate was the doctor of education (EdD), which accounted for 1.1% of the total in 2015. The SED recognizes 16 other distinct types of research doctorates, but none of these accounted for as many as 0.5% of the research doctorates awarded in 2015.

*Sampling frame.* The population eligible for the SED consists of all individuals who received a research doctorate from a U.S. academic institution in a particular academic year. In academic year 2015, the total universe consisted of 55,006 persons in 432 research doctorate-granting institutions.

*Sample design.* The SED is a census.

## ***Data Collection and Processing***

*Data collection.* Paper surveys are mailed to institutional coordinators in the graduate schools who then distribute the surveys to students receiving research doctorates. The institutional coordinators collect the completed surveys and return them to the survey contractor for editing and processing.

Since 2001, a Web-based SED option has been available. When students apply for graduation, institutional coordinators at some universities give students paper surveys and the link to the survey registration website; institutional coordinators at other universities give only the link to the survey registration website. Students who sign up at the survey registration website receive a personal identification number and password via e-mail, as well as the URL of the Web-based

SED. The proportion of completed surveys from respondents using the Web-based SED has increased each year since 2001, and it reached 93% in 2015.

Both paper and Web-based questionnaire instruments are used in follow-up mailings and e-mails to nonrespondents. If the series of follow-up mailings and e-mails is unsuccessful, the survey contractor attempts to reach nonrespondents using a computer-assisted telephone interview (CATI) abbreviated questionnaire. Approximately 1%–2% of SED completions each year use the CATI-based instrument. A paper survey is also mailed to individual respondents and institutions when critical SED questionnaire items are missing.

A small but growing number of research doctoral degrees are awarded as a part of joint doctoral programs (i.e., a research doctorate recipient studied at more than one institution in pursuit of the doctoral degree). In these instances, the survey contractor relies on information provided by the institutions to appropriately attribute the doctorate to one of the doctorate-granting institutions.

The survey collects a complete college education history. To code U.S. postsecondary degree-granting institutions, survey staff use IPEDS. To code the degree-granting institutions of respondents from foreign countries, survey staff use the coding manual *Mapping the World of Education: The Comparative Database System*, augmented with over 3,000 additional institutions from the *Europa World of Learning* and the *International Handbook of Universities*.<sup>1</sup> About one-third of U.S. doctorate recipients received undergraduate degrees from foreign institutions.

*Mode.* Three modes of data collection are used in the SED: self-administered paper surveys, Web-based surveys, and CATI.

*Response Rate.* Of the 55,006 individuals who received a research doctorate in 2015, 90.2% completed the SED survey instrument. Response rates ranged between 90.2% (in 2015) and 93.1% (in 2006) over the 2005–15 period. Additional information on response rate can be found below, under “Nonresponse error.”

*Data editing.* Approved automated edits are applied to the SED, a number of which pertain to the education history grid. In addition, paper surveys undergo review and editing prior to data entry.

*Imputation.* No imputation was used in producing the 2015 SED data presented in this report. For a discussion of the imputation applied to SED data presented in the *Doctorate Recipients from U.S. Universities report*, see the Technical Notes of that report.

*Weighting.* Survey data were not weighted.

*Variance estimation.* The SED is a census of all research doctorates with no weights calculated, so no variance estimation techniques were used.

*Disclosure protection.* As every field of study presented in this report involves the aggregation of multiple subfields, the highly aggregated counts of doctorate recipients by field provide sufficient disclosure protection, and it was not necessary to apply additional disclosure control methods to the SED data presented here. For a discussion of the disclosure protection methods applied to SED data presented in the *Doctorate Recipients from U.S. Universities report*, see the Technical Notes of that report.

## ***Survey Quality Measures***

*Sampling error.* Not applicable because the SED is a census.

*Coverage error.* Due to the availability of comprehensive lists of doctorate-granting institutions and the institutions' high levels of participation in the survey, coverage error of institutions is minimal. Because the graduate schools collect the questionnaires from degree recipients at the time of doctorate completion, coverage error for the universe of doctorate recipients is also minimal. Comparisons of the institutions and the number of research doctorate recipients covered by the SED with the total number of doctorate recipients (including nonresearch doctorate degree recipients) reported by institutions to NCES confirm that there is minimal coverage error of doctorate recipients. Institutions that begin to confer research doctorates are asked to join the SED. If a university that confers research doctorates does not wish to participate in the SED, slight undercounts may result.

*Nonresponse error.*

- *Unit nonresponse.* Of the 55,006 individuals who received a research doctorate in 2015, 90.2% completed the SED survey instrument. This percentage is referred to as the self-report rate. Limited records (doctoral institution, year of doctorate, field of doctorate, type of doctorate, and, if available, baccalaureate institution, master's degree 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 55,006 doctorate recipients for 2015.

Nonresponse was concentrated in certain institutions: in 2015, 0.9% of the 432 doctorate-granting institutions accounted for 20% of the total nonrespondents, and 10% of these institutions accounted for 65% of the total nonrespondents.

Counts for previous years were corrected by the addition of data from surveys received after the close of data collection for a given year.

- *Item nonresponse.* Item nonresponse rates in 2015 for the five key SED demographic variables—sex, citizenship, country of citizenship, race and ethnicity, and location after graduation—range from .03% for sex to 10.1% for location after graduation.

*Measurement error.* Measurement error in the SED is attributable to several sources, including error in recording respondent data (calculated at less than 1%) and editing error (calculated at 0.66%).

## ***Data Comparability (Changes)***

*Changes in survey coverage and population.* Each year the survey staff review the universe of doctoral degree-granting institutions to identify new institutions for possible inclusion in the SED, and each year a few are added to the list of participating institutions. Six institutions were added to the SED at the start of the 2015 survey, for a total of 432 eligible institutions. As of 2005, the start of the period covered by the current edition of this report, a total of 416 institutions were participating in the SED.

*Changes in reporting procedures or classifications.*

- *Field of study.* Every 2 years survey staff evaluate the SED field of degree taxonomy to identify and classify “emerging fields” that should be added to the taxonomy (a secondary purpose of these evaluations is to identify fields that should be deleted from the taxonomy, owing to low numbers of awarded doctorates). In 2005, the start of the period covered by the current edition of this report, there were 276 active fields of degree in the SED; by 2015, that number had grown to 324. See “Structural Changes to Report” in these technical notes for information on the changes made to the reporting of degree field data. The full list of fine fields of degree active over the 2005–15 period is presented in table A-1.
- *Race and Hispanic ethnicity.* On the SED questionnaire, respondents are asked to first indicate whether they are Hispanic or Latino and to then check one or more of the following racial group categories: American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, black or African American, or white. In the doctoral data tables of this report, respondents who indicate Hispanic or Latino ethnicity are counted as Hispanic or Latino regardless of their racial designation (or absence of racial designation). Among respondents who explicitly indicate they are not Hispanic or Latino, those designating a single race are reported in their respective racial groups, those indicating more than one race are reported in the “more than one race” group, and those who do not designate race are reported as “race not reported.” Respondents who did not answer the Hispanic or Latino ethnicity question are counted as “ethnicity not reported” regardless of their racial designation.

Persons who are U.S. citizens and foreign citizens admitted to the United States for permanent residence are classified into the above racial and ethnic categories. The racial and ethnic data of foreign citizens admitted to the United States for temporary residence are also collected according to the above categories on the SED survey, but their data are reported as a separate category (temporary visa holder).

The composition of the race categories reported in the doctoral degree tables is changed from previous editions of this report. In all SED publications prior to the 2013 SED survey, respondents were reported in their respective race categories regardless of whether they responded to the ethnicity survey question. That is, the count of doctorate recipients in a particular race category included respondents who explicitly indicated “not Hispanic or Latino” on the ethnicity survey question, and it also included those who did not respond to the ethnicity survey question. Beginning in 2013, the counts of doctorate recipients in each race category include only those individuals who explicitly indicated “not Hispanic or Latino” on the ethnicity survey question; doctorate recipients who did not respond to the ethnicity survey question are counted within the “ethnicity unknown” category even if they did respond to the race survey question. As a result of this change in the composition of the race categories, counts of doctorate recipients in each race category in the current *Science and Engineering Degrees, by Race/Ethnicity of Recipients: 2005–15* report will be smaller than the associated counts reported in the 2002–12 edition for the years in common (2005–12). The magnitude of the difference is relatively small, and it is equal to the number of doctorate recipients who did not respond to the ethnicity survey question but did respond to the race survey question; these are the doctorate recipients that are now being counted in the ethnicity unknown category.

- *Research doctoral degree.* As doctoral degree programs change to meet the needs of students, the orientation of the degrees they award may change from research to professional, and vice versa. Survey staff review degree programs to ensure that the designation of research doctorate remains appropriate. As a result of past degree reviews, survey staff identified research doctoral degrees that had shifted to a professional orientation over time. The doctor of music (DM) and the doctor of industrial technology (DIT) were both dropped from the SED in 2008, and the graduates (approximately 40 to 60 per year) who earn these doctoral degrees are no longer included in the SED. Also, after a multiyear review of doctoral programs offering the EdD degree, most were determined to have a professional orientation and were dropped from the SED in 2010 and 2011, and graduates earning EdD degrees from those programs are no longer included in the SED. As a result, the proportion of EdD degrees among the total number of research doctorate recipients fell from 5.5% in 2009 to 1.1% in 2015.

## Definitions

- *American Indian or Alaska Native.* A person (except those of Hispanic ethnicity) having origins in any of the original peoples of North and South America (including Central America) and who maintains cultural identification through tribal affiliation or community attachment. This category appears in data tables for all three degree levels.
- *Asian.* A person (except those of Hispanic ethnicity) having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian Subcontinent, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. This category appears in doctoral degree tables, but not in bachelor's or master's degree tables.
- *Asian or Pacific Islander.* A person (except those of Hispanic ethnicity) having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian Subcontinent, or the Pacific Islands Hawaii, Guam, Samoa, or other Pacific Islands). Before 2011, IPEDS collected and reported data on Asians or Pacific Islanders as a single racial category; starting in 2011, they began collecting data on Asians and on Native Hawaiians or Other Pacific Islanders as distinct categories. Because the data for these two categories do not cover the entire time series of this report, counts of degrees in the two categories over the 2011–15 period are added together, and only the degree counts in the combined category (Asian or Pacific Islander) are reported for all years 2005–15 in the bachelor's and master's degree tables. The SED collected data on Asians and on Native Hawaiians or Other Pacific Islanders as distinct racial categories over the entire 2005–15, and so the doctoral degree counts of these two groups are reported separately in the doctoral tables.
- *Bachelor's degree.* Baccalaureate or equivalent degree awards (as determined by the Secretary of Education) that normally require at least 4 but not more than 5 years of full-time equivalent college-level work. This includes all bachelor's degrees conferred in 5-year cooperative (work-study plan) programs in which students combine actual work experience with their college studies. Baccalaureate degrees in which the normal 4 years of work are completed in 3 years are also included in this category.
- *Black or African American.* A person (except those of Hispanic ethnicity) having origins in any of the black racial groups of Africa. This category appears in data tables for all three degree levels.

- *Ethnicity unknown.* A person who does not report their ethnicity regardless of whether they report their race. This category appears in doctoral degree tables, but not in bachelor's or master's degree tables.
- *Hispanic or Latino.* A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of their racial designation. This category appears in data tables for all three degree levels.
- *Master's degree.* Degree awards that require the successful completion of a program of study of at least the full-time equivalent of 1 academic year, but not more than 2 academic years, of work beyond the bachelor's degree.
- *Native Hawaiian or Other Pacific Islander.* A person (except those of Hispanic ethnicity) having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. This category appears in doctoral degree tables, but not in bachelor's or master's degree tables.
- *Other race or unknown.* Until 2011, this category was used in IPEDS data collections to report persons whose ethnicity and race are both unknown, non-Hispanic persons whose race is unknown, and non-Hispanic persons with more than one racial designation. Starting in 2011, IPEDS began reporting data on individuals indicating more than one race as a distinct category. To produce a consistent time series over the entire span of this report, counts of degrees in the category of more than one race over the 2011–15 period are added to the counts in the other race or unknown category, and are reported as a single combined category in the bachelor's and master's degree tables. This category does not appear in the doctoral degree tables, where race unknown, ethnicity unknown, and more than one race are reported separately.
- *Permanent resident.* A person who is not a citizen of the United States but who has been lawfully admitted for permanent residence (and who hold alien registration receipt cards—Form I-551/155). This citizenship category is labeled “resident alien” in published reports using IPEDS data. The racial and ethnic data on permanent residents are not presented separately in this report, but they are combined with the U.S. citizen data. The combined U.S. citizen and permanent resident category appears in data tables for all three degree levels.
- *Race unknown.* A person who reports non-Hispanic ethnicity but does not indicate their race. This category appears in doctoral degree tables, but not in bachelor's or master's degree tables.
- *Research doctoral degree.* A research doctorate is a doctoral degree that (1) requires completion of an original intellectual contribution in the form of a dissertation or an equivalent culminating project (e.g., musical composition) and (2) is not primarily intended as a degree for the practice of a profession. The SED recognized 18 distinct types of research doctorates in 2015. Recipients of professional doctoral degrees, such as MD, DDS, DVM, JD, DPharm, DMin, and PsyD, are not included in the SED.
- *Temporary visa holder.* A person who is not a citizen or permanent resident of the United States and who is in this country on a temporary basis and does not have the right to

remain indefinitely. This citizenship category is labeled “nonresident alien” in published reports using IPEDS data. This category appears in data tables for all three degree levels.

- *More than one race.* A person (except those of Hispanic ethnicity) reporting more than one racial designation. This category appears in doctoral degree tables, but not in bachelor’s or master’s degree tables.
- *U.S. citizen.* A person holding U.S. citizenship status either by birth or naturalization. The data on U.S. citizens are not presented separately in this report, but they are combined with data on permanent residents. The combined U.S. citizen and permanent resident category appears in data tables for all three degree levels.
- *White.* A person (except those of Hispanic ethnicity) having origins in any of the original peoples of Europe, North Africa, or the Middle East. This category appears in data tables for all three degree levels.

## **Structural Changes to Report**

### ***Changes to Reporting of Degree Field Data***

In comparison to previous editions of the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* report, the structure of the current (2005–15) edition has changed in three ways. The changes reflect a consolidation of data that previously appeared in two separate reports: *Science and Engineering Degrees, by Race/Ethnicity of Recipients* (see the 2002–12 edition to review the old format), which will continue being published in the format presented here, and *Science and Engineering Degrees* (see 1966–2012 edition to review format), which will no longer be published.

- To incorporate the greater detail in the reporting of degree fields formerly provided by the *Science and Engineering Degrees* report, *Science and Engineering Degrees, by Race/Ethnicity of Recipients* now presents data on three subfields within geosciences and six subfields within social sciences in all data tables.
- Two degree fields have been repositioned in the data tables. Health degrees are now being reported as a science and engineering (S&E) field whereas previous editions reported these degrees as a non-S&E field. Also, in past editions of this report, engineering technologies degrees were counted within the broad non-S&E field category “professional/other/unknown”; these degrees are now being reported as part of a separate “technologies” field category that includes degrees in multiple technology fields.
- The total number of tables in the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* report has been reduced from 35 to 18. Tables presenting data on health degrees and engineering technology degrees have been deleted, as data on these degree fields are included in all remaining data tables. Also, tables presenting data on first-professional degrees—defined as degrees that require at least six years of college work for completion and two years of preprofessional training—have been deleted.

### ***Changes to Reporting of Racial and Ethnic Data***

Beginning with the 2005–15 edition of the *Science and Engineering Degrees, by Race/Ethnicity of Recipients* report, the doctoral degree tables reporting racial and ethnic data include three categories that were not reported in earlier editions (Native Hawaiian or Other Pacific Islander,

race unknown, and ethnicity unknown). These three categories were not reported in earlier editions, and they are also not presented separately in the associated bachelor's and master's degree tables. Readers interested in making strict comparisons of degree counts by racial and ethnic category across the three degree levels should make the following adjustments to the data in the doctoral tables: (1) add degree counts for the Native Hawaiian or Other Pacific Islander category to the counts in the Asian category, for comparison to the Asian or Pacific Islander category in the bachelor's and master's degree tables; (2) combine the degree counts for more than one race, race unknown, and ethnicity unknown into a single category, for comparison to the other race or unknown category in the bachelor's and master's degree tables.

## Notes

<sup>1</sup> U.S. Department of Education. 1996. *Mapping the World of Education: The Comparative Database System (CDS)*. Vols. 1, 2, and 3. Arlington, VA: National Science Foundation. Available at <https://www.nsf.gov/statistics/mapping/>. 2015. *Europa World of Learning*. London: Routledge-Taylor & Francis Group. Serial and online database available at <http://www.worldoflearning.com/>. 2015. *International Handbook of Universities 2016*. London: Palgrave Macmillan UK. Serial and online database available at <https://www.whed.net/home.php>.