2026-2028 Survey of Graduate Students and Postdoctorates in Science and Engineering

OMB Supporting Statement

Section B

June 2026

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Section

EXHIBITS

LIST OF ATTACHMENTS

B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

There are no proposed statistical, methodological, or operational changes to the Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS) 2026-2028 or the 2027 Survey on Postdocs at Federally Funded Research and Development Centers (FFRDC Postdoc Survey). The procedures and methodology described in other sections are in current use on the GSS and the FFRDC Postdoc Survey and will be continued without change. Attachment 9 documents changes implemented in the past over the 2023-25 survey cycles.

B.1 Universe and Sampling Description

The GSS is an annual census of eligible institutions. The GSS universe is intended to cover all academic institutions in the United States and its territories that grant research-oriented master's degrees or doctorates, appoint postdocs, or employ nonfaculty researchers (NFRs) in science, engineering, and health (SEH) fields as of the fall term. An institution is considered eligible for the GSS if it grants at least one master's or doctoral degree in at least one program listed in a GSS-eligible field (see Attachment 10 for the list of GSS fields).

The FFRDC Postdoc Survey is a biennial census of all federally funded research and development centers. All FFRDCs recognized by the U.S. National Science Foundation (NSF) are considered part of the survey universe. Coordinators are instructed to report all employed postdocs in eligible SEH fields.

B.1.1 Discussion of Institutional Frame

The GSS frame is updated annually in advance of data collection. The Integrated Postsecondary Education Data System (IPEDS) and other sources are used to identify new institutions and existing institutions that now offer graduate degrees in GSS-eligible fields. See Exhibit 10 for a comparison of the number of GSS institutions, schools, units, and enrollment in 2022-2024. A more comprehensive eligibility review is conducted approximately once every four years. During these reviews, the GSS project team examines institutions currently in the GSS frame with six or fewer organizational units to determine whether these institutions should remain eligible. The review involves a close examination of institutional and departmental websites to determine whether the degrees offered are research rather than practitioner based, as well as direct correspondence with the institutions when warranted. The most recent review was

conducted in summer 2024. In examining the 2023 GSS frame, the National Center for Science and Engineering Statistics (NCSES) determined that 53 institutions were no longer offering research-based master's or doctoral programs in GSS fields and were thus no longer eligible. In 2023, these 53 institutions reported 0.8% of graduate students, including 1.3% of master's students, under 0.1% of doctoral students, postdoctoral appointees, and doctorate-holding NFRs. For more information on the eligibility review, see the InfoBrief *Impact of the 2024 GSS Institutional Eligibility Review on Counts of GSS Master's Students* (NSF 25-346). The frame for the FFRDC Postdoc Survey derives from the FFRDC Master List, which NSF has maintained since 1967 (available at https://ncses.nsf.gov/resource/master-gov-lists-ffrdc).

Exhibit 10. Number of GSS Institutions, Schools, Units, and Enrollment, 2022-2024

				Graduate Enrollment by Degree Level		
Year	**Institutions**	**Schools**	**Units**	**Total**	**Master's**	**Doctorate**
2022	690	775	22,519	798,534	501,311	297,223
2023	687	770	22,802	818,095	510,866	307,229
2024	635	715	23,121	818,078	505,930	312,148

Source(s):
National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering.

B.1.2 Response Rates

Exhibit 11 displays unit, school, and institutional response rates for the 2022-2024 GSS survey cycles. Total response rates (including both complete and partial responses) from GSS 2024 were high: 93.7% at the institution level, 93.6% at the school level, and 97.8% at the unit level. Response rates are projected to remain stable during the next three cycles (2026-2028). Complete responses are those where the coordinator provided data for all requested items while partial responses are those in which the coordinator left some data missing that was later imputed (see Section B.3.2 for more information on response types). All FFRDCs responded to the 2023 survey, including all of the FFRDCs that employed postdocs in 2021. Thus, the overall FFRDC response rate was 100.0%, and the response rate for FFRDCs that employed postdocs was 100.0%. The 2021 response rate was 95.3% overall.

Exhibit 11. GSS Institution, School, and Unit Response Rates: 2022-2024

	Total Response			Complete Response			Partial Response		
	2022	2023	2024	2022	2023	2024	2022	2023	2024
Institution	95.8% n=661	95.5% n=656	93.7% n=595	95.7% n=660	94.8% n=651	91.8% n=583	0.1% n=1	0.7% n=5	1.9% n=12
School	96.3% n=746	95.6% n=736	93.6% n=669	95.7% n=742	94.3% n=726	91.9% n=657	0.5% n=4	1.3% n=10	1.7% n=12
Unit	98.7% n=22,227	97.8% n=22,308	97.8% n=22,609	84.9% n=19,112	82.8% n=18,891	82.8% n=19,146	13.8% n=3,115	15.0% n=3,417	15.0% n=3,463

Source(s):
National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering.

B.2 Information Collection

Each institution has one or more school coordinators (SCs) that manage data collection activities. Some institutions have separate coordinators for the graduate enrollment section and the postdoc section, and some have separate coordinators for the graduate and medical schools. Each GSS survey cycle begins with a pre-data collection e-mail to the previous survey cycle's SC to determine whether they are still the appropriate contact for the upcoming cycle. The e-mail is typically sent in early September with follow-up emails if confirmation is not received before data collection is slated to begin. Upon the conclusion of the confirmation period, data collection commences for all institutions. Data collection begins in mid-October with an e-mail to the SC with web access information.

For new institutions, schools are contacted via e-mail to identify and onboard an SC for the survey and to verify the institution's eligibility for the GSS. NCSES e-mails the president of the institution a survey invitation letter naming the SC and welcoming them to the GSS.

The SC serves as the point of contact at the institution for all internal and external communications about the GSS. The SC may choose to delegate some reporting activity to unit respondents (URs) at their institutions, or they may report the GSS data themselves. If using URs, the SC's responsibilities include notifying the URs of their assignments and ensuring that the UR submits the completed data by the established due date. The 2024 data collection plan, including a timetable and communications with GSS stakeholders, is included in Attachment 11.

SCs are asked to prepare data files that can be uploaded directly into the GSS web survey instrument for the units that enroll graduate students and/or employ postdocs or NFRs. The SCs are provided with survey variable and file specifications for each type of GSS data requested—

graduate students, postdocs, and NFRs—as well as file templates in the form of Microsoft Excel spreadsheets (see Attachments 12a, 12b, and 12c) to organize their data.

SCs who are not ready or are unable to provide data through data upload method will be allowed to provide their data through the manual entry of requested data into a series of grids on the GSS web instrument. A copy of the GSS worksheet that corresponds to the GSS web instrument is available for download via the survey instrument (see Attachment 13). Information can be compiled on this worksheet for each unit prior to data entry into the web instrument.

The process of completing the FFRDC Postdoc Survey is similar to that of the GSS with exception to the availability of Electronic Data Interchange (EDI) and the use of URs because each FFRDC constitutes a single organizational unit.

B.2.1. Collection of Data Based on Updated CIP Codes

In 2017, the GSS began collecting disciplinary field data from institutions based on the Classification of Instructional Programs (CIP) codes rather than NCSES's GSS codes. The collection of data by CIP codes has contributed to a reduction in response burden because these codes are commonly used at institutions. CIP is the academic field taxonomy used by the National Center for Education Statistics (NCES) for IPEDS, a mandatory reporting requirement for institutions receiving Title IV funding. Schools still have the option of using either CIP codes or GSS codes for reporting postdoc and NFR data only. In 2024, approximately 83% of institutions were able to provide student data using CIP codes. FFRDCs report data using GSS codes, as CIP codes are not applicable outside of academia.

B.3 Statistical Accuracy of the Collection

B.3.1 Methods Used to Maximize Response Rates

Because the GSS is designed to produce estimates for all U.S. postsecondary institutions that offer graduate degree programs in SEH fields, care is taken to maximize response rates and thus reduce the likelihood of biased estimates. The survey staff work closely with the SCs to build strong working relationships with all participating institutions and try to ensure that all contacts are positive.

Survey techniques proven successful in past surveys will again be used to maximize the GSS response rate. These techniques include:

- Early pre-data collection confirmation of the SC and their contact information
- Targeted e-mails and telephone follow-up based on response status
- Knowledgeable survey staff working at the GSS Help Desk to respond to questions and concerns and help the SCs and URs via telephone and e-mails
- Multiple modes of data collection allowed (two data upload options, web instrument)
- The inclusion of cover letters explaining how the provided data are used
- Enlistment of others at the institution, as appropriate, to gain cooperation

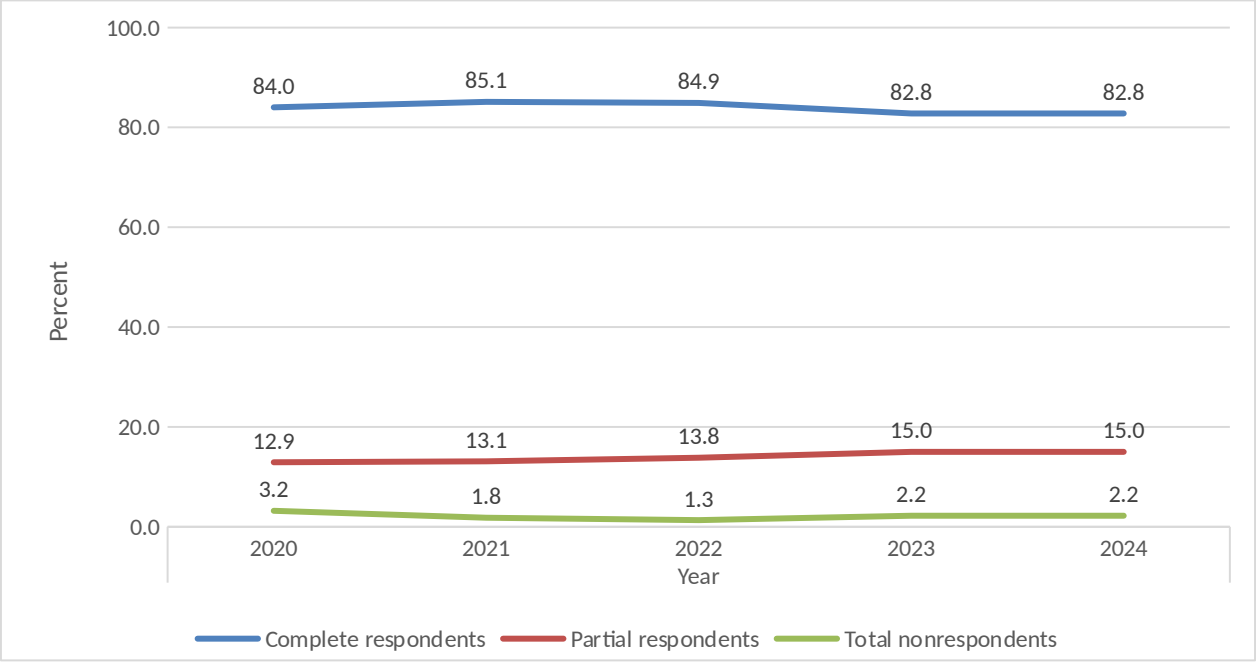
In addition to the methods listed above, a series of presentations were offered at professional conferences that GSS SCs frequently attend. Over the past three years (2023-2025), presentations have been made at the Association for Institutional Research (AIR) Annual Forum. Additionally, GSS survey staff conduct an annual webinar to provide specific instructions and support for SCs navigating any changes in the GSS data collection. NCSES also conducts site visits (either virtually or in person) to institutions to discuss data collection and reporting challenges and potential solutions upon the recommendation of the GSS data collection team.

Many of these response techniques are deployed for the FFRDC Postdoc Survey as well, including help desk support, multiple phone and e-mail contracts, and the use of site visits and virtual meetings to encourage participation.

B.3.2 Imputation Methods for Unit and Item Nonresponse

GSS Unit and Item Nonresponse. Units that provide a complete response to every item in the questionnaire are defined as *complete (unit) respondents* (needing no imputation); units that provide some, but not all, items are *partial (unit) respondents* (needing partial imputation); and units that provide no response are *total (unit) nonrespondents* (requiring complete imputation). Exhibit 12 shows the unit response rates by GSS survey cycle for 2020-2024. The overall unit nonresponse rate for all units in the 2024 GSS is 17.2%, representing 3,975 units needing imputation. The 2024 percentage of total unit nonrespondents is 2.2%, and the percentage of partial unit respondents is 15.0%. As seen in Exhibit 12, the unit response rates from 2020 to 2024 have remained steady for each response type.

Exhibit 12. Unit Response Rates: 2020-24 (Percent)



Source(s):
National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering.

The *item imputation rate* is a measure of the amount of missing data for each key total and grid detail variable collected on the GSS. For the 2024 GSS, all 543 data items required imputation. Exhibit 13 presents a summary of the item imputation rates for various classes of items: part-time (PT) and full-time (FT) master's students, PT and FT doctoral students, postdoctorates, and NFRs. Overall, item imputation rates ranged from 1.7% to 7.3%, with a mean item imputation rate of 4.2%, where 186 items had imputation rates between 1% and 3%, 157 items had rates between 3% and 5%, 193 items had rates between 5% and 7%, and seven items had rates between 7% and 9%.

Exhibit 13. Item Imputation Rates for Part-Time or Full-Time Graduate Students, Postdoctorates, and Nonfaculty Researcher Items: 2024 (Number and Percent)

Item Imputation Rate	Total	Part-Time Master's Students		Full-Time Master's Students		Part-Time Doctoral Students		Full-Time Doctoral Students		Postdoctorates		Nonfaculty Researchers	
		Items	%	*Items*	%	*Items*	%	*Items*	%	*Items*	%	*Items*	%
Total items	543	30	100.0	158	100.0	30	100.0	158	100.0	152	100.0	15	100.0
≥ 1% and < 3%	186	30	100.0	63	39.9	30	100.0	63	39.9	0	0.0	0	0.0
≥ 3% and < 5%	157	0	0.0	0	0.0	0	0.0	95	60.1	62	40.8	0	0.0
≥ 5% and < 7%	193	0	0.0	95	60.1	0	0.0	0	0.0	90	59.2	8	53.3
≥ 7% and < 9%	7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	46.7

Source(s):
National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering.

GSS Imputation Methods. The 2024 GSS collected 543 data items related to enrollment and financial support for master's and doctoral PT and FT students, postdocs, and NFRs. All missing data within partial responding and total nonresponding units were imputed. To address the unit and item nonresponse, three methods of imputation were used, including a carry-forward imputation method, a nearest neighbor method, and an adjusted enrollment method based on IPEDS data. Details of these methods are documented in the 2023 GSS Methodology Report.[1] The imputation section from that report is included in Attachment 14.

FFRDC Postdoc Survey Imputation Methods. The 2023 FFRDC Postdoc Survey collected five distinct data items related to postdocs employed at FFRDCs. The item response rate was 100% among FFRDCs known to employ postdocs. No imputation was performed on the collected data.

B.3.3 Accuracy and Reliability of Data

Both surveys are censuses with high response rates, and statistical imputation is conducted for nonresponse. A consideration of various survey quality measures includes:

Sampling error. Not applicable because both the GSS and FFRDC Postdocs Survey are censuses.

Coverage error. Due to the availability of comprehensive lists of the master's- and doctorate-granting institutions in the United States and the high level of participation in the survey of the eligible institutions, coverage error is minimal. The universe of higher education institutions is reviewed annually to identify potentially eligible institutions. Sources for this review include IPEDS, the Carnegie Classification of Institutions of Higher Education, the Higher Education Directory, NCSES's Higher Education Research and Development Survey, and professional association membership lists. There is no coverage error for the FFRDC survey other than that, if any, from the Master Government List of FFRDCs maintained by NSF.

Nonresponse error. The GSS typically has high response rates. In 2024, 97.8% of units provided complete or partial data and the overall institutional response rate was 93.7%. Of the

[1] NCSES. (2022). 2023 Survey of Graduate Students and Postdoctorates in Science and Engineering: Survey Methodology Report, deliverable under contract NSFDACS 49100422F0122. December 2024.

543 data items collected in the GSS, the item imputation rates ranged from 1.7% to 7.3%. All missing data are imputed. Similarly, the FFRDC survey typically has high response rates. For the 2023 cycle, 100% of FFRDCs provided complete or partial data.

Measurement error. The GSS is subject to measurement error that arises when variables of interest cannot be measured accurately or precisely. Review of the data, cognitive interviews, usability tests, pilot tests, site visits, and other methodological activities with the institutions have pointed to several possible sources of measurement error. The types of measurement errors listed below are believed to have a minimal impact on data quality.

- *Double counting.* Anecdotal evidence indicates some misreporting may occur when an institution has more than one coordinator or offers joint programs. To reduce double counting, facilitate communication, and allow sharing of reported data, a screen in the Web survey provides names and contact information for all coordinators at the institution. Interactive and post-submission checks are also used to confirm that similarly named units within institutions are distinct eligible units. The introduction of data uploads has minimized this type of measurement error. This issue is now flagged for fewer than 0.5% of units reported to the GSS annually.
- *Inclusion of practitioner degrees.* Graduate students working toward practitioner degrees, particularly in health fields with explicit exclusions, may sometimes be overreported. Survey materials indicated that students should be excluded from the counts if they are pursuing DDS or MD degrees or certain other degrees in specified fields. During data collection coordinators confirm via a pop-up dialog that they excluded practitioner degrees from the data provided in their upload files. Prior to the introduction of this pop-up dialog, it was more common to mistakenly include graduate students earning practitioner degrees. However, since the addition of this popup, fewer than 0.5% of units that report doctoral students mistakenly included students pursuing practitioner degrees. During the data check and imputation process new units that were suspected of reporting ineligible graduate students have their websites manually checked for evidence of eligibility. Rarely, the opposite problem happens, where an eligible graduate student may be identified as a practitioner by a coordinator.

- *Difficulty in reporting source and mechanism of support.* Feedback from respondents and methodological research indicates that financial support data are often difficult for respondents to report. The information may not be stored in one centralized database; financial support may not always be channeled through the institution (e.g., self-support); and foreign sources of support may not always be known. Respondents may also have difficulty categorizing financial information by field, such as when a student is enrolled in one unit but receives support from another. Therefore, these data may be more prone to measurement error than other survey data items. Finally, institutions define mechanisms of support differently (e.g., fellowships vs. traineeships) and may report individuals according to the institution's definition rather than that provided by the GSS. Since the 2010 survey, the postdoc forms include "unknown" categories.
- *Difficulty in reporting postdocs and NFRs.* Many respondents indicated in the Web survey that they are unable to provide data on their units' postdocs or NFRs because they do not know all of the units that employ postdocs and NFRs. Schools were given the option of appointing a separate postdoc coordinator who may be more knowledgeable about a school's postdocs or NFRs to provide these data. Coordinators may also indicate that they had postdocs or NFRs but were unable to report them and counts are thus imputed.

The most likely source of measurement error on the FFRDC postdoc survey is from respondents' misreporting of information. The survey Web instrument was designed to allow respondents to indicate that they have postdocs but do not have the information about them for a particular grid, which allows missing information to be distinguished from the reporting of zero counts.

Both the GSS and the FFRDC Postdoc Survey have extensive review processes to check the consistency of each coordinator's data within and across years. Substantial changes in counts and inconsistent data survey responses are subject to follow-up contacts to verify changes and correct anomalies in the data. For the GSS, the use of CIP codes for reporting helps ensure reliability, as these codes are used for IPEDS, which is a mandatory data collection.

B.4 Testing of Procedures

NCSES plans to conduct several methodological activities with the goal of improving data quality and potentially broadening the scope of information associated with the students enrolled in eligible academic institutions and the postdoctoral and nonfaculty researchers employed by same. Changes under consideration include, but are not limited to, modifying the definition of doctorate-holding NFRs and expanding the collection of NFR data. To conduct appropriate methodological testing for these changes to GSS and potentially the FFRDC Postdoc Survey, NCSES is requesting 2,000 hours for the three-cycle survey clearance period.

The GSS has been collecting separate data on postdoctoral researchers and NFRs since 1979. Separating counts of these two groups of researchers was originally implemented to improve accuracy in the counting of postdocs. As a separate category of research staff generally working on a non-term-limited basis (as opposed to postdocs who are often limited in the number of years they can be employed under this job title), the NFR was offered as a residual category to keep research staff from being erroneously reported as postdocs. Considerably less information is collected about NFRs than about postdocs or graduate students: in the current GSS, there are 188 data items collected on graduate enrollments, 152 data items on postdocs, and only 15 data items regarding NFRs. NFRs also account for a modest proportion of overall counts in the GSS. For example, the 2024 survey reported information on 818,078 graduate students, 69,877 postdocs, and 35,142 NFRs. Despite this relatively lower profile within the GSS, the NFR data are used regularly to help determine research intensity of U.S. academic institutions. Over the last several years, NCSES conducted a series of investigations to better appreciate the challenges that institutions face when dealing with the GSS definition of NFR. The investigations were necessary because institutional interpretations of the GSS definition of NFR vary, complicating comparisons of NFR data between institutions. Attachment 15 presents the results of these investigations.

NCSES proposes to follow up its NFR methodological work by conducting a recordkeeping survey of GSS respondents to determine what data they currently maintain on research staff and the salient challenges posed in reporting if GSS adopts changes to NFR definitions.

B.5 Individuals Consulted

The NCSES contacts for statistical aspects of the GSS data collection are Michael Yamaner, GSS Project Officer (703-292-7815), Ronda Britt, Research and Development, Workforce, and Education Measurement Program Director (703-292-7765), Jennifer Beck, NCSES Survey Methodologist (703-292-8328), and Vrinda Nair, NCSES Mathematical Statistician (703-292-4455).