



National Center for Science and
Engineering Statistics

Survey

Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions | 2021

The Federal S&E Support Survey is the only source of comprehensive data on federal science and engineering funding to individual academic and nonprofit institutions.

Survey Description

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Survey Overview (FY 2021 Survey Cycle)

Purpose

The Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (through the FY 2020 data collection) and the Federal Science and Engineering Support module within the Survey of Federal Funds for Research and Development (Federal Funds Survey) (as of the FY 2021 data collection) is the only source of comprehensive data on federal science and engineering (S&E) funding to individual higher education and nonprofit institutions. The module is sponsored by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF).

Data collection authority

The information is solicited under the authority of the National Science Foundation Act of 1950, as amended, and the America COMPETES Reauthorization Act of 2010.

Major changes to recent survey cycle

For the FY 2021 data collection, the questions on the formerly independent Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions were incorporated as a module within the Federal Funds Survey.

Key Survey Information

Frequency	Annual.
Initial survey year	FY 1963.
Reference period	FY 2021.
Response unit	Federal agencies.
Sample or census	Census.
Population size	The Federal Funds Survey is a census of all federal agencies that conduct research and development (R&D) programs, excluding the Central Intelligence Agency (CIA). Those that obligate money to higher education or nonprofit institutions or consortia for S&E R&D or for the construction or maintenance of R&D facilities completed the Federal Science and Engineering Support module. In the survey cycle for data collection on FY 2021, the population is 33 federal agencies.
Sample size	Not applicable.
Key variables	<p>Key variables of interest are listed below.</p> <p>Data are collected at the funding-agency level and provided in aggregated form for individual higher education institutions—1,081 in FY 2021. The survey provides data on federal funding by the following key variables:</p> <ul style="list-style-type: none"> ● Category of support

- R&D conduct (research, development, test, and evaluation [RDT&E] for the Department of Defense [DOD])
- R&D plant
- S&E fellowships, traineeships, and training grants
- Facilities and equipment for instruction in S&E
- Other general support for S&E (this combines the former categories of General support for S&E and Other activities related to S&E)
- Type of institution
- Federal agency providing support
- State
- Higher education institution characteristics
 - Highest degree granted
 - Historically Black colleges and universities
 - High-Hispanic-enrollment institutions
 - Tribal institutions
 - High-American Indian-enrollment institutions
 - Minority-serving institutions
 - Type of control (public versus private)

Data are also collected at the funding agency level and provided in aggregated form for nonprofit institutions—982 for FY 2021. The survey provides data on federal funding to nonprofit institutions by the following key variables:

- Category of support
 - R&D conduct (RDT&E for DOD)
 - R&D plant

Note that this survey uses definitions for R&D and R&D plant that are comparable to those used by the Office of Management and Budget.

Survey Design

Target population

The target population for the Federal Science and Engineering Support module was all federal agencies that conduct R&D programs, excluding the CIA. Those agencies that obligated money in FY 2021 to higher education or nonprofit institutions or consortia for S&E R&D or the construction or maintenance of R&D facilities completed the Federal Science and Engineering Support module. The module collects data on institutions of higher education in the United States that engage primarily in providing resident or accredited instruction for not less than a 2-year program above the secondary school level that is

acceptable for full credit toward a bachelor's degree or that provide not less than a 1-year program of training above the secondary school level that prepares students for gainful employment in a recognized occupation. Included are colleges of liberal arts; schools of arts and sciences; professional schools, as in engineering and medicine, including affiliated hospitals and associated research institutes; and agricultural experiment stations.

Nonprofit institutions are private organizations, other than educational institutions, whose net earnings in no part benefit a private stockholder or individual. Nonprofits also include private organizations created for the exclusive purpose of turning over their entire net earnings to a not-for-profit organization. Consortia are organizations formed by the membership of institutions from one or more types of performers to promote and support efforts to enhance knowledge in one or more disciplines. NCSSES has identified several consortia and classified them as either academic or nonprofit types based on the predominance of their membership at the time of identification. If a consortium's members are not primarily higher education or nonprofit, but the consortium is legally organized as a nonprofit, NCSSES classifies that consortium as a nonprofit institution.

Sampling frame

This survey is a census. As of the FY 2021 data collection, all respondents to the Federal Funds Survey were presented with the higher education and nonprofit institution questions, although some had no obligations to report for these two categories.

Sample design

Not applicable.

Data Collection and Processing

Data collection

Data for FY 2021 were collected by Synectics for Management Decisions, Inc. (Synectics) under contract to NCSSES. Data collection began with an e-mail to each agency to verify the name, phone number, and e-mail address of each agency-level survey respondent. A Web-based data collection system is used to collect the data, and that system was redesigned for the volume 71 survey. Due to delays in fully implementing the redesigned website, respondents were originally supplied with spreadsheets that they could use to collect their data and either enter the data themselves when the website became available or send to the support team for data entry.

For the Federal Science and Engineering Support module, information was collected for federal FY 2021 (i.e., 1 October 2020 through 30 September 2021). Data collection began 19 May 2022, and the requested due date for data submissions was 5 August 2022. Data collection is extended until all surveyed agencies have provided complete and final data.

Data processing

A Web-based data collection system is used to collect and manage data. This Web-based system was designed to help improve survey reporting and reduce data collection and processing costs by offering respondents direct online reporting and editing. However, some agencies submit their data in alternative formats.

The data are checked through both manual reviews and automated data checks that include a comparison of current year obligations by category of support and the corresponding prior year obligations. Problems are referred to the agency that submitted the data for correction; respondents' data are not changed by the survey contractor or NCSSES.

Estimation techniques

There is no unit nonresponse or known item nonresponse; therefore, weighting or imputation techniques are not used. All survey fields must be populated with data, and agencies input \$0 if no funds are obligated.

Survey Quality Measures

Sampling error

Not applicable.

Coverage error

Occasionally, small amounts (less than \$100,000) of R&D may be obligated to a university or college by an agency other than the ones included in the survey, and these amounts are not captured.

Nonresponse error

There is no unit nonresponse error as all agencies responded to the survey this year. Agencies are encouraged to estimate information when actual data are unavailable. The data collection instrument allows respondents to enter data, and agencies input \$0 if no funds are obligated. Although respondents are required to complete all fields and are not permitted to submit the survey unless all fields are completed with either data or \$0, there may still be some item nonresponse error by respondents. For example, respondents may inadvertently report \$0 in a field when data are unavailable.

Measurement error

The major source of nonsampling error in this survey is measurement error. Agencies are not always able to provide the precise information requested. For example, federal agencies are not always able to identify which branch of a university receives funding from them. Thus, complete disaggregation by actual university branch may not be feasible for some universities.

Other problems include agency difficulties in matching program descriptions with the proper funding category (e.g., R&D, facilities and equipment for instruction in S&E) in the database. At least one agency stated in the past that the "General support for S&E" and "Other S&E" categories are a catchall for programs that do not fit anywhere else. (These two categories were combined as "Other general support for S&E" in the FY 2021 data collection.)

Data Availability and Comparability

Data availability

Annual data are available for FYs 1963–2021.

Data comparability

Eight federal agencies supplied data for FYs 1963–67 (data collection began in 1965). The initial survey elicited information about higher education institutions only. Additional agencies have been included in the years since then. The survey has been conducted annually since 1968. Information on nonprofit organizations was added in 1968.

In some instances, prior year data have been modified based on discrepancies noted during the consistency reviews of the data across years. To obtain accurate historical data, data users should use only the most recent publication, which incorporates corrections agencies have made in prior year data.

Data Products

Publications

NCSES publishes data from this survey annually in the detailed tabular data series [Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions](#). Data for major data elements are available for FY 1963 onward.

Electronic access

Access to the data for major data elements is available for FY 1963 onward in NCSSES's [interactive data tool](#). Users can create custom tables about federal S&E funding to higher education and nonprofit institutions by federal agency.