



National Center for Science and  
Engineering Statistics

## Survey

# Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions | 2020

The Federal S&E Support Survey is a congressionally mandated survey and 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 2020 Survey Cycle)

#### Purpose

The Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (Federal S&E Support Survey) is the only source of comprehensive data on federal science and engineering (S&E) funding to individual academic and nonprofit institutions. The survey is sponsored by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF).

#### Data collection authority

The information from this congressionally mandated survey is collected under the authority of the NSF Act of 1950, as amended, and the America COMPETES Reauthorization Act of 2010.

#### Major changes to recent survey cycle

The FY 2020 survey was modified to enable separate reporting of funding provided under the Coronavirus Aid, Relief, and Economic Security Act plus any other pandemic-related supplemental appropriations from regular appropriations.

### Key Survey Information

<b>Frequency</b>	Annual.
<b>Initial survey year</b>	FY 1963.
<b>Reference period</b>	FY 2020.
<b>Response unit</b>	Federal agencies.
<b>Sample or census</b>	Census.
<b>Population size</b>	The survey is a census of all federal agencies that obligate money to academic or nonprofit institutions or consortia for S&E research and development or the construction or maintenance of R&D facilities. In the survey cycle for data collection on FY 2020, the population is 18 federal agencies.
<b>Sample size</b>	Not applicable.
<b>Key variables</b>	<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 academic institutions—991 in FY 2020. The survey provides data on federal funding by the following key variables:</p> <ul style="list-style-type: none"> <li>● Category of support <ul style="list-style-type: none"> <li>○ R&amp;D (research, development, test, and evaluation [RDT&amp;E] for the Department of Defense [DOD])</li> <li>○ Fellowships, traineeships, and training grants</li> <li>○ R&amp;D plant</li> </ul> </li> </ul>

- Facilities and equipment for instruction in S&E
- General support for S&E
- Other activities related to S&E
- Type of institution
- Federal agency providing support
- State
- Academic 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—860 for FY 2020. The survey provides data on federal funding to nonprofit institutions by the following key variables:

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

Note that the variables in this survey use definitions comparable for R&D and R&D plant to those used by the Office of Management and Budget and the Survey of Federal Funds for Research and Development (Federal Funds Survey).

## Survey Design

### Target population

The target population was all federal agencies that obligated money in FY 2020 to academic or nonprofit institutions or consortia for S&E R&D or the construction or maintenance of R&D facilities. Academic institutions are 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 and other private organizations created for the exclusive purpose of turning over their entire net earnings to such nonprofit organizations. 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 academic 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. Its population is derived from the federal agencies identified in the Federal Funds Survey as providing R&D or R&D plant obligations to universities or nonprofit organizations. For FY 2020, there were 18 agencies (10 federal departments and 8 independent agencies). Because multiple subdivisions of a federal department were in some cases requested to complete the survey, there were 55 agency-level respondents (1 federal department, 46 department subdivisions, and 8 independent agencies) and 34 program-office level respondents, for a total of 89 respondents.

## Sample design

Not applicable.

## Data Collection and Processing

### Data collection

The FY 2020 survey was conducted 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, address, fax and phone numbers, and e-mail address of each agency-level survey respondent. A Web-based data collection system is used to collect the Federal S&E Support Survey data, but some agencies submit data offline.

Information was collected for the federal fiscal year 2020 (i.e., 1 October 2019 through 30 September 2020). Data collection began 19 May 2021, and the requested due date for data submissions was 23 July 2021. Data collection is usually 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 for the Federal S&E Support Survey. 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. NCSSES assumes a blank field is zero for estimation purposes.

## 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 by this survey.

## Nonresponse error

Agencies are encouraged to estimate information when actual data are unavailable. The survey instrument allows respondents to enter data or skip data fields. There are several possible sources of nonresponse error by respondents, including inadvertently skipping data fields, skipping data fields under the false assumption that blank fields are equivalent to zero, and skipping data fields 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 federal S&E support database. At least one agency has said that the "general support for S&E" and "other S&E" categories are a catchall for programs that do not fit anywhere else.

# Data Availability and Comparability

## Data availability

Annual data are available for FYs 1963–2020.

## Data comparability

Eight federal agencies supplied data for FYs 1963–67 (data collection began in 1965). The initial survey elicited information about academic 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

Data from this survey are also available in the NCSES's [Academic Institution Profiles](#).

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