



National Center for Science and  
Engineering Statistics

## Survey

# Survey of Science and Engineering Research Facilities | 2023

The Survey of Science and Engineering Research Facilities is a congressionally mandated, biennial survey that collects data on the amount, construction, repair, renovation, and funding of research facilities at U.S. colleges and universities.

## Survey Description

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### Survey Overview (FY 2023 Survey Cycle)

#### Purpose

The Survey of Science and Engineering Research Facilities is a congressionally mandated survey from the National Center for Science and Engineering Statistics (NCSES) within the U.S. National Science Foundation. It is the primary source of information on the amount and cost of space at science and engineering (S&E) research facilities located at U.S. research-performing colleges and universities. The survey is the basis of public data used by Congress, higher education associations, state governments, academia, and architectural and engineering firms.

#### 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. The Office of Management and Budget control number is 3145-0101, expiring on 30 September 2026. The disclosure review number is NCSES-DRN24-061.

#### Major changes to recent survey cycle

A change was made to the list of disciplines included in the fields of S&E to better coordinate field totals in national academic surveys. The discipline of “plant pathology and phytopathology, agricultural” was removed from “agricultural sciences, animal sciences, plant sciences, and veterinary sciences.” “Plant pathology and phytopathology” is reported under “biological and biomedical sciences.”

### Key Survey Information

<b>Frequency</b>	Biennial.
<b>Initial survey year</b>	1986.
<b>Reference period</b>	FY 2023.
<b>Response unit</b>	Establishments. U.S. academic institutions reporting at least \$1 million in R&D expenditures in the Higher Education Research and Development (HERD) Survey.
<b>Sample or census</b>	Census.
<b>Population size</b>	A total of 602 institutions in FY 2023.
<b>Sample size</b>	Not applicable.
<b>Key variables</b>	Key variables of interest are listed below. <ul style="list-style-type: none"> <li>● Amount and type of science and engineering research space</li> <li>● Current expenditures for projects to construct and to repair and renovate research facilities</li> <li>● Condition of research facilities</li> <li>● Planned construction and repair and renovation of research facilities</li> </ul>

- Source of funds (federal, state and local, institutional) for construction and for repair and renovation of research facilities
- Research animal facilities

## Survey Design

### Target population

Research-performing colleges and universities in the United States with \$1 million or more in R&D expenditures in S&E in the prior fiscal year.

### Sampling frame

This survey is a census. The population is identified through the HERD Survey of the previous fiscal year. In the FY 2023 survey cycle, there were 602 academic institutions eligible to participate in the survey.

### Sample design

All eligible units are surveyed.

## Data Collection and Processing

### Data collection

The FY 2023 survey was conducted by Westat under contract to NCSES. Surveys are distributed to institutional coordinators at each institution. These coordinators are individuals knowledgeable about the requested information who collect the responses from various offices and complete the survey. The data collection period was October 2023 through April 2024.

### Data processing

Several procedures were used to clean and edit the data. For example, the Web survey contained numerous programmed edit checks that alerted respondents to inconsistent or missing data via edit messages. These included alerting respondents if their individual data did not sum to the total. Also, once respondents submitted their final data, a second set of edit checks was conducted. Finally, comparisons were made between an institution's FY 2023 data and the data from the previous survey. Respondents were contacted regarding any apparently inconsistent, missing, or unclear data.

### Estimation techniques

This survey is a census. Imputation was performed for missing items from nonresponding institutions to make population estimates.

Data missing because of unit nonresponse and item nonresponse were imputed using a regression-model approach with the following predictors: (1) institutional control (private or public), (2) highest degree granted (doctorate or nondoctorate), (3) existence of a medical school, (4) R&D expenditures for the prior fiscal year, and (5) total net assignable square feet (NASF) for the prior fiscal year. In addition to the core predictors, regression models for specific survey items included data from responses to other survey items and the institution's FY 2021 responses, where available.

## Survey Quality Measures

### Sampling error

This survey is a census, so no sampling error exists.

### Coverage error

Coverage is high because institutions meeting the population requirements are identified from the HERD Survey. Institutions were investigated individually to ensure there was no duplication.

### Nonresponse error

The unit nonresponse rate was 4.3% (26 of 602) for the FY 2023 survey. Item nonresponse ranged from 0% to 5.5% for all items. Nonresponding institutions (unit nonrespondents) were not included in the item nonresponse calculations.

### Measurement error

The most likely source of measurement error results from institutions estimating the requested data. Respondents may estimate their data for several reasons, including estimating data that are not included in the institution's database or because some figures are estimates by their nature (e.g., out-year budget figures).

Measurement error may also occur because institutions may define their database elements differently from the definitions used on the survey. For example, an institutional database may identify research space based on a primary-use criterion, whereas the survey requests that space be prorated according to all uses. The survey question on the condition of research space is a subjective question that may be rated differently across respondents.

## Data Availability and Comparability

### Data availability

Survey data are compiled for the defined fiscal year, the preceding fiscal year, and planned activities for 2 succeeding fiscal years.

### Data comparability

This survey was first conducted in 1986. Small improvements were made to the survey questions over time. Although data comparability was generally not affected, any specific impact is accounted for in the technical notes for each survey. The FY 2001 survey was very limited and comprised only two questions that corresponded to questions in the prior survey cycles.

The questionnaire was extensively redesigned for implementation in the FY 2003 survey. A comprehensive description of the redesigned survey can be found in [Redesign of Survey of Science and Engineering Research Facilities: 2003](#). To the extent possible, the FY 2003 survey was redesigned for comparability over time.

Questions were added on computing and networking capacity beginning with the FY 2003 survey cycle. Following each survey cycle, the computing and networking capacity questions in Part 2 of the survey were evaluated for current relevance and updates in technology. The computing and networking capacity questionnaire was discontinued prior to the FY 2015 survey cycle after an in-depth investigation concluded that it was no longer feasible, appropriate, or cost-effective to proceed with collection of these data.

Changes were made to the fields of S&E and to the lists of disciplines included in the fields for the FY 2007, FY 2015, FY 2017, FY 2021, and FY 2023 surveys to better coordinate field totals in national academic surveys. The changes for FY 2007 were extensive enough that comparisons with pre-FY 2007 data at the S&E field level are not advised. S&E field-level data are comparable for FY 2007 to the present.

## Data Products

### Publications

Detailed tabular data and analysis from this survey are published biennially and are available at the [survey homepage](#). Information from this survey is also included in *Science and Engineering Indicators*.

### Electronic access

Microdata beginning with the FY 2007 survey are available in NCSSES [data tools](#). [Public use files](#) beginning with FY 2003 are available at the [NCSSES microdata page](#). Due to a confidentiality pledge, microdata from this survey for years 1988 through 2001 are not available.