FORM APPROVED
OMB No. 3145-0100
Expiration Date: 10/31/13

NATIONAL SCIENCE FOUNDATION

ARLINGTON, VA 22230

HIGHER EDUCATION RESEARCH AND DEVELOPMENT SURVEY
FY 2012 Short Form

Please submit your survey data by January 31, 2013.

This survey collects data on research and development (R&D) activities at higher education institutions. Please report R&D activities and expenditures for your institution's **2012** fiscal year.

Your participation in this survey provides important information on the national level of R&D activity. The National Science Foundation (NSF) is authorized to collect this information under the National Science Foundation Act of 1950, as amended. Your institution's response is entirely voluntary.

Questions?

Ronda Britt
National Center for Science and Engineering Statistics
National Science Foundation
rbritt@nsf.gov
(703) 292-7765

INFORMATION COPY
DO NOT USE TO REPORT

Response to this survey is estimated to require 14 hours. Please report your actual completion time at the end of the questionnaire. If you wish to comment on the time required to complete this survey, please contact Suzanne H. Plimpton of NSF at (703) 292-7556, or e-mail splimpto@nsf.gov.

The Web address for submitting your data:

http://www.herdsurvey.org

Or mail this form to:

ICF International
530 Gaither Road, Suite 500
Rockville, MD 20850

Thank you for your participation.

What's New for FY 2012

Reduction in questions

NSF received many inquiries from institutions during the FY 2011 survey regarding the possibility of completing a subset of questions for the survey. We recognize that for institutions with small amounts of R&D expenditures, completing the full survey is burdensome and not directly relevant to their institution's primary mission. Therefore, we have instituted a short form version of the survey that includes only a few core questions for institutions below a designated threshold of R&D expenditures.

Changes to survey definitions and instructions

In order to continue to provide greater clarity regarding what types of institutionally funded activities should be included, we have modified the instructions in several places on page 3. These revisions are not meant to be changes to the survey definitions; however, we recognize that some institutions will need to revise their reporting as a result of these modified instructions. A new question was added (see below) in order to account for the changes made this year.

- The definition of R&D expenditures has been revised to include all expenditures for R&D from your institution's current operating funds that can be separately accounted for. This includes projects that are separately budgeted and fall under OMB's A-21 definition of organized research, as well as expenditures of other funds designated for research.
- In the box labeled "R&D includes", three additional bullets were added: startup, bridge, or seed funding provided to researchers within your institution; other departmental funds designated for research; and tuition remission provided to students working on research.
- In the box labeled "R&D does not include", one bullet was revised to reduce ambiguity. It was changed from "departmental research that is not separately budgeted" to "estimates of the proportion of time budgeted for instruction that is spent on research."
- In the box labeled "Please include these components of your institution", the "university 501(c)3 foundation" bullet has been revised to include all university 501(c)3 foundations, not just those established to handle R&D awards.

Changes to questions

- **Question 1.** Row d, Nonprofit organizations. An instruction has been added to specify that funds from your institution's 501(c)3 foundation be reported in row e1 (institutionally financed research).
- **Question 1.** Row e1, Institutionally financed research, has been clarified to include both organized research and separately accounted for departmental research.
- **Question 1.** Row e3, Unrecovered indirect costs. The wording has been modified to emphasize that *only* your externally funded R&D should be used to calculate these costs.

New question

- **Question 1.1.** This question asks if four different types of institutionally financed R&D expenditures were included in Question 1, row e1, both on the current FY 2012 survey and on the FY 2011 survey.

Survey Definitions and Instructions

Fiscal year (FY)
Please report data for your institution's 2012 fiscal year.

Research and development (R&D) is creative work conducted systematically to increase the stock of knowledge (research) and to use this stock of knowledge to devise new applications (development). R&D covers three activities defined below—basic research, applied research, and development.

- **Basic research** is undertaken primarily to acquire new knowledge without any particular application or use in mind.
- **Applied research** is conducted to gain the knowledge or understanding to meet a specific, recognized need.
- **Development** is the systematic use of the knowledge or understanding gained from research directed toward the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes.

R&D expenditures
Include all R&D expenditures from your institution's current operating funds that are separately accounted for. For purposes of this survey, R&D includes expenditures for organized research as defined by 2 CFR 220 (OMB Circular A-21) and expenditures from funds designated for research.

R&D ***includes:***	R&D does ***not*** include:
• Sponsored research (federal and nonfederal) • University research (institutional funds that are separately budgeted for individual R&D projects) • Startup, bridge, or seed funding provided to researchers within your institution • Other departmental funds designated for research • Recovered and unrecovered indirect costs (see definitions in Question 1) • Equipment purchased from R&D project accounts • R&D funds passed through to a subrecipient organization, educational or other • Clinical trials, Phases I, II, or III (see definition in Question 5) • Research training grants funding work on organized research projects • Tuition remission provided to students working on research	• Public service grants or outreach programs • Curriculum development (unless included as part of an overall research project) • R&D conducted by university faculty or staff at outside institutions that is not accounted for in your financial records • Estimates of the proportion of time budgeted for instruction that is spent on research • Capital projects (i.e., construction or renovation of research facilities) • Non-research training grants • Unrecovered indirect costs that exceed your institution's federally negotiated Facilities and Administrative (F&A) rate

Please ***include*** these components of your institution:	Please do ***not*** include:

• All units of your institution included in or with your financial statements, such as:
  • Agricultural experiment stations
  • Branch campuses
  • Medical schools
  • Hospitals or clinics
  • Research centers and facilities
  • A university 501(c)3 foundation
	• Federally Funded R&D Centers (FFRDCs). This information is collected separately. See the list of FFRDCs: http://www.nsf.gov/statistics/ffrdc/.
	• Other organizations or institutions, such as teaching hospitals or research institutes, with which your institution has an affiliation or relationship, but which are ***not*** components of your institution.
	• Other campuses headed by their own presidents or chancellors within your university system. Each campus is asked to respond separately.

Question 1. How much of your total expenditures for research and development (R&D) came from the following sources in FY 2012? (See definition of R&D on the previous page.)

- In rows a, b, c, d, and f: Include both **direct** and **recovered indirect costs** (reimbursement of F&A costs from external sponsors).
- Report the **original source** of funds, when possible.
- Include **all** fields of R&D (e.g., sciences, engineering, humanities, education, law, arts). See full listing in Question 9.

Source of funds	R&D expenditures (Dollars in thousands) (*for example, report $25,342 as $25*)
a. U.S. federal government Any agency of the United States government. Include federal funds passed through from another institution.	$_____
b. State and local government Any state, county, municipality, or other local government entity in the United States, including state health agencies. Include state funds that support R&D at agricultural and other experiment stations. *Public institutions* should report state appropriations restricted for R&D activities here rather than in row e, Institutional funds.	$_____
c. Business Domestic or foreign for-profit organizations. Report funds from a company's nonprofit foundation in row d.	$_____
d. Nonprofit organizations Domestic or foreign nonprofit foundations and organizations. Report funds from your institution's 501(c)3 foundation in row e1.	$_____
e. Institutional funds	
1. Institutionally financed research All R&D funded by your institution, including both organized research and separately accounted for departmental research.	$_____ (Confidential[1])
2. Cost sharing Include committed cost sharing other than unrecovered indirect costs. Report unrecovered indirect costs in row e3.	$_____ (Confidential[1])
3. Unrecovered indirect costs Calculate this amount as follows for your externally funded R&D only (preferably on a project-specific basis) using the appropriate cost rate—on-campus, off-campus, etc. • First, multiply the negotiated rate by the corresponding base. • Second, subtract recovered indirect costs.	$_____ (Confidential[1])
4. Total institutional funds[2]	$ TOTAL
f. All other sources Other sources not reported above, such as funds from foreign governments.	$_____
g. Total[2]	$ TOTAL

[1] Information from confidential items is not published or released for individual institutions; only aggregate totals will appear in publications. In accordance with the National Science Foundation Act of 1950, as amended, and other applicable federal laws, your responses will not be disclosed in identifiable form to anyone other than agency employees or authorized persons.

[2] Totals for rows e4 and g are automatically generated on the Web survey.

Question 1.1. Did you include the following types of funding in your response to Question 1, row e1?

	Included in Question 1e1 this year (FY 2012)	Included in Question 1e1 in previous year (FY 2011)
a. Competitively awarded internal grants for research Expenditures for organized research projects, involving a proposal or statement of work with expected research outcomes.	☐	☐
b. Startup packages/bridge funding/seed funding Expenditures from funds provided to faculty members to begin or continue their research while seeking external sponsors.	☐	☐
c. Other departmental funds designated for research Expenditures for research from other departmental or central accounts which do not match the descriptions provided in rows a or b.	☐	☐
d. Tuition assistance for student research personnel University tuition assistance, waivers, or remission provided to students working on organized research. Please check "included in Question 1e1" even if these funds are reported as part of the expenditures included under rows a, b, or c.	☐	☐

Question 2. What were your FY 2012 R&D expenditures in the fields below? Please report federally funded expenditures in column (a) and all other expenditures in column (b).

- Examples of the disciplines included under each field are provided on pages 7–9.

R&D Fields		R&D expenditures (Dollars in thousands) (a) Federal	(b) Nonfederal	(c) Total[1]
1.	Computer Sciences	$_____	$_____	$ TOTAL
2.	Engineering	$_____	$_____	$ TOTAL
3.	Environmental Sciences	$_____	$_____	$ TOTAL
4.	Life Sciences	$_____	$_____	$ TOTAL
5.	Mathematical Sciences	$_____	$_____	$ TOTAL
6.	Physical Sciences	$_____	$_____	$ TOTAL
7.	Psychology	$_____	$_____	$ TOTAL
8.	Social Sciences	$_____	$_____	$ TOTAL
9.	Other Sciences	$_____	$_____	$ TOTAL
10.	Non-S&E fields	$_____	$_____	$ TOTAL
11.	**Total for All Fields of R&D[1]**	$ TOTAL	$ TOTAL	$ TOTAL

Total in row 11, column (a) should match total reported in Question 1, row a.

Total in row 11, column (b) should match total reported in Question 1, rows b–f.

[1] Row and column totals are automatically generated on the Web survey.

Question 3. **How much of your R&D expenditures reported in Question 1 did your institution <u>receive as a subrecipient</u> from another U.S. university or college?**

Please report the original source of funds in columns (a) and (b).

The **subrecipient** for an award carries out the work but receives the funds from a pass-through entity rather than directly from the original funding source. Subrecipients tend to be the co-authors of publications, writers of technical reports discussing findings, inventors, etc. Do **not** include vendor relationships. A vendor receives payment for goods and services provided. See OMB Circular A-133, Section 210.

	Originating source of R&D expenditures (Dollars in thousands)		
	(a) Federal	**(b) Nonfederal**	**(c) Total[1]**
Funds received from other U.S. higher education institutions Include colleges and universities and units owned, operated, and controlled by such institutions.	$_____	$_____	$ TOTAL

Question 4. **How much of the R&D expenditures reported in Question 1 did your institution <u>pass through to subrecipients</u> at other U.S. universities or colleges?**

Please report the original source of funds in columns (a) and (b).

	Originating source of R&D expenditures (Dollars in thousands)		
	(a) Federal	**(b) Nonfederal**	**(c) Total[1]**
Funds passed through to other U.S. higher education institutions Include colleges and universities and units owned, operated, and controlled by such institutions.	$_____	$_____	$ TOTAL

[1] Row and column totals are automatically generated on the Web survey.

1

Question 5.

A. Contact information: Please complete the contact information for the person responsible for the survey and an alternate contact.

	Primary contact	**Alternate contact**
Name		
Title		
Institution name		
Building/department		
Street address (line 1)		
Street address (line 2)		
City, state, and ZIP code		
Phone number		
Fax number		
E-mail address		

B. Fiscal year: In what month did your institution's 2012 fiscal year end?

C. Survey completion time: Considering all offices involved, approximately how long did it take to complete this survey? **hours**

D. Additional comments:

EXAMPLES OF DISCIPLINES UNDER EACH R&D FIELD

1. Computer Sciences

Computer systems analysis
Data processing
Information sciences
Information technology
Management information systems

2. Engineering

Aeronautical/ Astronautical
- Aerodynamics
- Aerospace engineering
- Space technology

Bioengineering/ Biomedical engineering
- Biomaterials
- Medical engineering

Chemical
- Petroleum
- Petroleum refining process
- Plastics
- Polymer
- Wood science

Civil
- Architectural
- Architecture
- Environmental
- Environmental health
- Geotechnical
- Hydraulic
- Hydrologic
- Sanitary
- Structural
- Transportation

Electrical
- Communications
- Computer
- Electronics
- Power

Mechanical
- Engineering mechanics

Metallurgical/Materials
- Ceramic
- Materials science
- Metallurgy
- Mining and mineral
- Textile
- Welding

Other engineering
- Agricultural
- Engineering design
- Engineering physics
- Engineering science
- Marine
- Naval architecture
- Nuclear
- Ocean
- Systems

3. Environmental Sciences

Atmospheric sciences
- Aeronomy
- Extraterrestrial atmospheres
- Meteorology
- Solar
- Weather modification

Earth sciences
- Cartography
- Earth and planetary sciences
- Geochemistry
- Geodesy and gravity
- Geology
- Geomagnetism
- Geophysics
- Hydrology
- Paleomagnetism
- Paleontology
- Physical geography
- Seismology
- Surveying

Oceanography
- Biological oceanography
- Chemical oceanography
- Geological oceanography
- Marine biology
- Marine oceanography
- Physical oceanography

Examples of disciplines continue on next page.

4. Life Sciences

Agricultural sciences

Agricultural chemistry
Agricultural economics—report in Social sciences, Economics
Agricultural engineering—report in Engineering
Agricultural production
Agronomy
Animal science
Aquaculture
Conservation
Fish and wildlife
Forestry
Horticulture
International agriculture
Landscape architecture
Plant sciences
Renewable natural resources
Soil sciences

Biological sciences

Allergies and immunology
Anatomy
Bacteriology
Biochemistry
Biogeography
Biology, general
Biometrics
Biophysics
Biostatistics
Biotechnology

Biological sciences (continued)

Botany
Cellular biology
Ecology
Entomology
Epidemiology
Foods and nutrition studies
Genetics, plant and animal
Immunology
Medical microbiology
Microbiology
Molecular biology
Nutritional sciences
Parasitology
Pathology, human and animal
Pharmacology, human and animal
Physical anthropology
Physiology, human and animal
Toxicology
Virology
Zoology

Medical sciences

Anesthesiology
Cardiology
Colon and rectal surgery
Dental surgery
Dentistry

Medical sciences (continued)

Dermatology
Family medicine
Gastroenterology
General surgery
Geriatric medicine
Gynecology
Hematology
Internal medicine
Mental health
Neonatal-perinatal medicine
Neurological surgery
Neurology
Neurosciences
Nuclear medicine
Nuclear radiology
Obstetrics
Oncology
Ophthalmology
Optometry
Oral surgery
Orthopedic surgery
Orthopedics
Osteopathic medicine
Otorhinolaryngology
Pediatrics
Pharmacology
Pharmacy
Physical and rehabilitative medicine
Plastic surgery
Podiatry

Medical sciences (continued)

Preventive medicine
Psychiatric nursing
Psychiatry
Public health
Radiation biology/Radiobiology
Thoracic surgery
Urology
Veterinary medicine

Other life sciences

Clinical/medical laboratory technologies
Communication disorders sciences and services
Gerontology
Health and medical administrative services
Health professions and related services, other
Nursing
Occupational therapy
Physical therapy
Rehabilitation services
Therapeutic services

5. Mathematical Sciences

Algebra
Analysis
Applied mathematics
Foundations and logic
Geometry
Numerical analysis
Operations research
Statistics
Topology

6. Physical Sciences

Astronomy

Astrophysics
Gamma-ray astronomy
Neutrino astronomy
Optical astronomy
Radio astronomy
X-ray astronomy

Chemistry

(except biochemistry—report in Biological sciences)

Analytical chemistry
Inorganic chemistry
Organic chemistry
Organo-metallic chemistry
Pharmaceutical chemistry
Physical chemistry
Polymer sciences

Physics

Acoustics
Atomic physics
Chemical physics
Condensed matter physics
Elementary particle physics
Mathematical physics
Molecular physics
Nuclear structure
Optics
Plasma physics
Theoretical physics

7. Psychology

Animal behavior
Art therapy
Clinical psychology
Educational psychology
Experimental psychology
Human development and personality
School psychology
Social psychology

Examples of disciplines continue on next page.

8. Social Sciences

Economics

- Agricultural economics
- Applied economics
- Business development
- Econometrics
- Industrial economics
- International economics
- Labor economics
- Managerial economics
- Public finance and fiscal policy
- Quantitative economics
- Resource economics

Political science

- Comparative government
- Government
- International relations and affairs
- Legal systems
- Political theory
- Public administration
- Public policy analysis
- Regional studies

Sociology

- Anthropology, cultural and social
- Anthropology, physical—report in Life Sciences
- Comparative and historical sociology
- Complex organizations
- Cultural and social structure
- Demography
- Group interactions
- Population studies
- Social problems and welfare theory

Other social sciences

- Archaeology
- Area and ethnic studies
- City and community planning
- Community services
- Corrections
- Criminal justice
- Geography
- History of science
- Linguistics
- Urban affairs
- Urban and regional planning
- Urban studies

---

9. Other Sciences

Use this category for R&D that involves at least one S&E field (fields 1–8) if it is impossible to report multidisciplinary or interdisciplinary R&D expenditures in specific fields.

---

10. Non-S&E Fields

Business and management

- Business management and administrative services
- Marketing distribution
- Marketing operations

Communication, journalism, and library science

- Communication
- Communications technologies
- Library science

Education

Humanities

- English language and literature
- Foreign languages and literature
- General studies and humanities
- History (except history of science—report in Social sciences)
- Letters
- Liberal arts and sciences
- Philosophy and religion
- Theological studies and religious vocations

Law

- Legal studies

Social work

Visual and performing arts

Other non-S&E fields

- Military technologies
- Parks, recreation, leisure and fitness studies

Other non-S&E fields that cannot be classified using the fields listed above