FORM APPROVED OMB No. 3145-0100 Expiration Date: 07/31/2025



# NATIONAL SCIENCE FOUNDATION ALEXANDRIA, VA 22314

# HIGHER EDUCATION RESEARCH AND DEVELOPMENT SURVEY FY 2023

Please submit your survey data by January 31, 2024.

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.

Response to this survey is estimated to require 64 hours. 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 entering your data:

http://www.herdsurvey.org/

Or send completed form to Support@HERDsurvey.org

**Questions?** 

Technical support:

Support@HERDsurvey.org (866) 936-9376

General survey questions:

Michael Gibbons National Center for Science and Engineering Statistics National Science Foundation mgibbons@nsf.gov (703) 292-4590

Thank you for your participation.

# What's New for FY 2023

# **Changes to Questions**

- Question 1 instructions were updated to clarify that:
  - Funds coming through your institution's 501(c)3 should be reported based on the original funding source. For example, a grant sponsored by a business coming through your research foundation should be reported in Business (row c), a gift from a donor restricted to research should be reported in All Other Sources (row f), and funding from unrestricted gifts should be reported as institutionally financed research (row e1).
  - Institutionally financed expenditures should not be based on estimated research time. Time or expenditures should be separately accounted for in financial or audited effort reporting records.
- **Question 2** now specifies that only expenditures where the original funding source was foreign should be included.

# **Survey Definitions and Instructions**

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 **2023** fiscal year.

# Fiscal Year (FY)

Please report data for your institution's 2023 fiscal year.

# Research and Development (R&D)

R&D activity is creative and systematic work undertaken in order to increase the stock of knowledge — including knowledge of humankind, culture, and society — and to devise new applications of available knowledge. R&D covers three activities defined below — basic research, applied research, and experimental development.

- **Basic research** is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.
- **Applied research** is original investigation undertaken in order to acquire new knowledge. It is directed primarily towards a specific, practical aim or objective.
- Experimental development is systematic work, drawing on knowledge gained from research and practical
  experience and producing additional knowledge, which is directed to producing new products or processes or to
  improving existing products or processes.

# **R&D** Expenditures

Include all expenditures for R&D activities 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 Part 200 Appendix III and expenditures from funds designated for research.

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

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

	<ul> <li>In rows a, b, c, d, and f: Include both direct and recovered indirect (reimbursement of F&amp;A costs from external sponsors).</li> <li>Report the original source of funds, when possible.</li> <li>Funds coming through your institution's 501(c)3 should be reported source (e.g., restricted gifts in row f; unrestricted gifts in row e1).</li> </ul>			ginal fundir	ıg
	<ul> <li>Include all fields of R&amp;D (e.g., sciences, engineering, humanities, See full listing in Question 9.</li> </ul>	educati			
So	urce of funds	(for e		penditure: 1 thousand 25.34	ls)
a.	U.S. federal government				
	Any agency of the United States government. Include federal funds passed through from another institution. Funds from FFRD should be treated as direct federal funding.	)Cs	\$	08724	
b.	State and local government			4404	
	Any state, county, municipality, or other local government entity in the United Static including state health agencies.		\$	4464	
	Include state funds that support R&D at agricultural and other experiment station <i>Public institutions</i> should report state appropriations restricted for R&D activities rather than in row e, Institutional funds.				
c.	Business		\$	1727	
	Domestic or foreign for-profit organizations. Report funds from a company's nonprofit foundation in row d.		\$		
d.	Nonprofit organizations			0.475	
	Domestic or foreign nonprofit foundations and organizations, except universities and colleges. Funds from other universities and colleges should be reported in r		\$	8475	
e.	Institutional funds				
	1. Institutionally financed research	\$	28820		
	Separately accounted for R&D funded by your institution. Do <b>not</b> include <i>estimated</i> research time. Exclude institution research administration and support (e.g., office of sponsored programs) or other indirect costs.	*	nfidential <sup>1</sup> )		
	2. Cost sharing		5700		
	Include committed cost sharing other than unrecovered indirect costs.	\$ (Co	5768 nfidential <sup>1</sup> )		
	3. Unrecovered indirect costs		0000		
	<ul> <li>Calculate for externally funded R&amp;D only (preferably on a project-specific basis) using the appropriate cost rate—on-campus, off-campus, etc.</li> <li>First, multiply the <i>negotiated</i> rate by the corresponding base.</li> <li>Second, subtract recovered indirect costs.</li> </ul>	\$ (Co	8808 nfidential <sup>1</sup> )		
	4. Total institutional funds <sup>2</sup>		\$	43396	
f.	All other sources		¢		
	Other sources not reported above, such as funds from foreign governments, foreign or U.S. universities, and gifts designated by the donors for research.		\$	2797	
g.	Total <sup>2</sup>		\$	69583	

responses will not be disclosed in identifiable form to anyone other than agency employees or authorized persons. Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the federal information systems that transmit your data. <sup>2</sup> Totals for rows e4 and g are automatically generated on the Web survey.

Quest	uestion 1.1. Did you include the following types of funding in your responses to Question 1, row e1?					
		Included				
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" even if these funds are reported as part of the expenditures included under rows a, b, or c.					

Question 2.	How much of the total R&D expenditures reported in Question 1, row g, or the following foreign sources?	iginated from
	<ul> <li>Expenditures funded by domestic sources that passed through a foreign so reported on this question.</li> </ul>	urce should <b>no</b> t be
Source of f	unds	R&D expenditures (Dollars in thousands)
All level	<b>i government</b> s of foreign government, including national, regional, municipality, or other vernment.	\$ <u>0</u>
compar	<b>ss</b> for-profit organizations. Projects sponsored by a U.S. location of a foreign y are <b>not</b> considered foreign. Report funds from a company's nonprofit ion in row c.	\$ <u>839</u>
Foreign	<b>fit organizations</b> nonprofit foundations and organizations, except higher education institutions. rom foreign universities should be reported in row d.	\$ <u>778</u>
<b>d. Higher</b> Foreign institutio	colleges and universities and units owned, operated, and controlled by such	\$ <u>195</u>
Include United I	er sources international governmental organizations located in the U.S., such as the Nations, the World Bank, and the International Monetary Fund and all other sending funds to the U.S. from a location outside the U.S. and its territories.	\$0
f. Total <sup>1</sup>		\$1812
i ne column to	tal is automatically generated on the Web survey.	

# Question 3. Of the total R&D expenditures that were externally funded (all sources other than the institutional funds reported in Question 1, row e4), how much was received under each of the following types of agreements?

		R&D expenditures (Dollars in thousands)
a.	Contracts (including direct or prime contracts and subcontracts)	s 24914
	Contracts are legal commitments in which a good or service is provided by your institution that benefits the sponsor. The sponsor specifies the deliverables and gains the rights to results.	Φ
b.	Grants, reimbursements, and all other agreements	s 101273
	Include all other agreements in which payments are received but no good or service other than periodic reporting is required in exchange.	
c.	Total <sup>1</sup>	
	(Total should match Question 1, row g minus Question 1, row e4)	<u></u> \$ <u>126187</u>
<sup>1</sup> The	column total is automatically generated on the Web survey.	

Quest	ion 4.			
A.	Did your institution have a medical school (that is awards the MD or DO degree) in FY 2023?	s, a school that	Yes 🖌 → No	Go to Question 4B. Go to Question 5.
В.	Of the total R&D expenditures reported in Questi your medical school?	on 1, row g, how m	uch was expende	d for R&D projects in
	Include projects that are assigned to the medical sch medical school.	ool or to research ce	enters that are orga	nizationally part of the
				R&D expenditures (Dollars in thousands)
	Total R&D expenditures in the university's medic	al school		<u></u> 42349
0.00	stion 5.			
Que	suon 5.			
А.	Did your institution conduct any clinical trials in	FY 2023?	Yes <b>✓</b> →	Go to Question 5B.
			No <b>→</b>	Go to Question 6.
	<b>Clinical trials</b> are research studies designed to a effects of drugs, vaccines, medical devices, tests patients. Clinical trials are used to determine safe	s, treatments, and ot	her therapies for	
	For reference, the National Institutes of Health (N into the following four phases.	NIH) categorizes hun	nan clinical trials	
	Please include:			
	<ul> <li>Phase I uses a small group of human patient identify side effects.</li> <li>Phase II uses a larger group (100–300) to te</li> </ul>		-	
	<ul> <li>safety.</li> <li>Phase III uses a large group (1,000–3,000) to effects, compare to commonly used treatment</li> </ul>			
	Please <b>exclude:</b>		-	
	<ul> <li>Phase IV is a post-market study that collects and optimal use.</li> </ul>	more information or	n risks, benefits,	
В.	Of the total R&D expenditures reported in Question and Phase III clinical trials with human patients?	on 1, row g, how m	uch was expended	l for Phase I, Phase II,
			R&D expenditur	05
			(Dollars in thousar	
		(1) Federal	(2) Nonfederal	(3) Total¹
	Human clinical trials	<sub>\$</sub> 147	<sub>\$</sub> 593	<sub>\$</sub> 740
	Trials with human patients	φ	φ	φ
<sup>1</sup> The	row total is automatically generated on the Web survey.			

Question 6.	What amounts of your FY 2023 R&D experimental development		basic research, applied	d	
	<ul> <li>If possible, these categories defining the project level by the principal investigator</li> <li>See the table below this question for example.</li> </ul>	. Estimates are acc		lual	
			R&D expenditures (Dollars in thousands)		
		(1) Federal	(2) Nonfederal	(3) Total <sup>1</sup>	
Experin primaril underly	research nental or theoretical work undertaken y to acquire new knowledge of the ing foundations of phenomena and able facts, without any particular application n view.	<sub>\$</sub> _107143	<u></u> \$58024	<sub>\$</sub> 165167	
acquire	d research I investigation undertaken in order to new knowledge. It is directed primarily a specific, practical aim or objective.	<sub>\$</sub> 1439	<u></u> \$2010	\$ <u>3449</u>	
System from re produci to prod	mental development atic work, drawing on knowledge gained search and practical experience and ng additional knowledge, which is directed ucing new products or processes or to ng existing products or processes.	\$ <u>142</u>	\$ <u>825</u>	\$ <u>967</u>	
	n 1 total should match Question 1, row a. n 3 total should match Question 1, row g.	<sub>\$</sub> 108724	\$ <u>60859</u>	<u></u> 169583	

<sup>1</sup> Row and column totals are automatically generated on the Web survey.

	Examples							
Basic research	Applied research	Experimental development						
A researcher is studying the properties of human blood to determine what affects coagulation.	A researcher is conducting research on how a new chicken pox vaccine affects blood coagulation.	A researcher is conducting clinical trials to test a newly developed chicken pox vaccine for young children.						
A researcher is studying the properties of molecules under various heat and cold conditions.	A researcher is investigating the properties of particular substances under various heat and cold conditions with the objective of finding longer-lasting components for highway pavement.	A researcher is working with state transportation officials to conduct tests of a newly developed highway pavement under various types of heat and cold conditions.						
A researcher is investigating the effect of different types of manipulatives on the way first graders learn mathematical strategy by changing manipulatives and then measuring what students have learned through standardized instruments.	A researcher is studying the implementation of a specific math curriculum to determine what teachers needed to know to implement the curriculum successfully.	A researcher is developing and testing software and support tools, based on fieldwork, to improve mathematics cognition for student special education.						

Question 7.	How much of your R&D expenditures reported in Question 1 did your institution <u>receive as a subrecipient</u> ?									
	<ul> <li>The subrecipient for an award carrie through entity rather than directly fro the co-authors of publications, writer</li> </ul>	m the original funding s	ource. Subrecipients ten	d to be						
<ul> <li>Do not include contractor or vendor relationships. A contractor or vendor receives payment for goods and services provided. See 2 CFR Part 200 Subpart D Section 330.</li> </ul>										
	<ul> <li>Please report the original source of funds in columns (1) and (2) and the pass-through source in rows a–d. Examples:</li> </ul>									
	<ul> <li>Your university receives federal funds from another university as a subaward (row a, column 1).</li> <li>Your university receives federal funds from a company as a subaward (row b, column 1).</li> </ul>									
	<ul> <li>Funds received directly from an FFR not included on this question.</li> </ul>	DC should be treated a	is direct federal funding a	and						
			g source of R&D expen (Dollars in thousands)	ditures						
Entity pass	sing funds to your institution	(1) Federal	(2) Nonfederal	(3) Total <sup>1</sup>						
College	gher education institutions as and universities and units owned, ed, and controlled by such institutions	§9161	§1320	<sub>\$</sub> 10481						
<b>b. Busine</b> For-pro	sses fit organizations	\$ <u>5322</u>	\$ <u>39</u>	§5361						
_	ofit organizations fit foundations and organizations	<u></u> \$1918	§675	§2593						
	nd local governments, foreign institutions ig foreign universities/colleges, and others	<u></u> \$1280	s351	<sub>\$</sub> 1631						
e. Total <sup>1</sup>		<u></u> \$17681_	<sub>\$</sub> 2385	<u></u> \$20066						
<sup>1</sup> Row and colu	mn totals are automatically generated on the We	eb survey.								

Quest	Question 8. How much of the R&D expenditures reported in Question 1 did your institution pass through to subrecipients?									
			<b>t</b> include contractor or vendor re ent for goods and services provi							
<ul> <li>Please report the original source of funds in columns (1) and (2) and the entity receiving the funds in rows a–d. Examples:</li> </ul>										
<ul> <li>Your institution passed through federal funds to another university (row a, column 1).</li> <li>Your institution passed through funds from a company to another university (row a, column 2).</li> </ul>										
	Originating source of R&D expenditures (Dollars in thousands)									
Ent	tity receiv	ving funds t	rom your institution	F	(1) ederal	Non	(2) federal		(3) Total <sup>1</sup>	
a.	Colleges	and univers	on institutions ities and units owned, lled by such institutions	\$	15079	\$	517	\$	15596	
b.	<b>Busines</b> For-profit	<b>ses</b> t organizatio	ns	\$	678	\$	798	\$	1476	
C.	•	it organizat foundation	ions s and organizations	\$	2389	\$	120	\$	2509	
d.		0	rnments, foreign institutions versities/colleges, and others	\$	1742	\$	59	\$	1801	
e.	Total <sup>1</sup>			\$	19888	\$	1494	\$	21382	
<sup>1</sup> Row	and columr	n totals are a	utomatically generated on the Web	survey.						

Question 9A–B. What were your FY 2023 R&D expenditures in the computer and information sciences and engineering funded by the federal agency sources below? (R&D expenditures from nonfederal sources will be reported in Question 11.)									
•	question.								
•	when possible and report the amount for each field involved.								
				nditures from (Dollars in thou		rces <sup>1</sup>			
R&D Fields	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
(Examples listed below)	USDA	DoD	Energy	HHS, includes NIH	NASA	NSF	Other	Total <sup>2</sup>	
A. Computer and Information Sciences	\$0	<sub>\$</sub> _1226	<u>\$</u> 68	<u></u> \$520	\$0	<sub>\$</sub> _2876	\$574	<sub>\$</sub> _5264	
B. Engineering									
1. Aerospace, Aeronautical, and Astronautical Engineering	<u></u> \$0	<u>\$</u> 0	<u></u> 90	\$ <u>0</u>	<u></u> \$0	<u>\$</u> 0	<u>\$</u> 0	\$0	
2. Bioengineering and Biomedical Engineering	\$97	\$ <u>685</u>	\$0	<sub>\$</sub> _4713	\$0	\$ <u>613</u>	\$ <u>324</u>	<sub>\$</sub> 6432	
3. Chemical Engineering	§35	<sub>\$</sub> _1056	<u></u> \$103	<u></u> 140	<u></u> 13	§_2027	<u></u> \$244	<sub>\$</sub> _3618	
4. Civil Engineering	<u>\$</u> 0	<u></u> \$861	<u></u> \$656	\$0	<u></u> \$28	<sub>\$</sub> 731	§925	<sub>\$</sub> 3201	
5. Electrical, Electronic, and Communications Engineering	\$0	\$_1004	\$ <u>170</u>	\$ <u>192</u>	\$0	<u></u> 1121	§926	<sub>\$_</sub> 3413	
<ol> <li>Industrial and Manufacturing Engineering</li> </ol>	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
7. Mechanical Engineering	<u></u> \$0	<sub>\$</sub> 5314	<u></u> \$0	<sub>\$</sub> 75	<sub>\$</sub> 12	<sub>\$</sub> 1613	<sub>\$</sub> 348	<sub>\$</sub> 7362	
8. Metallurgical and Materials Engineering	<u>\$</u> 0	<u></u> \$_3234	<sub>\$</sub> _674	\$ <u>92</u>	<u>\$</u> 1	<sub>\$_</sub> 1638	\$519	<sub>\$</sub> 6158	
9. Other Engineering	\$71	\$1	\$0	\$0	§374	\$ <b>499</b>	§235	<sub>\$</sub> _1180	
10. <b>Total</b> ²	<u></u> \$203	<sub>\$</sub> 12155	<u></u> 1603	<sub>\$</sub> _5212	\$428	<u></u> 8242	<sub>\$</sub> _3521	<sub>\$</sub> 31364	

<sup>1</sup> Key: USDA, Department of Agriculture; DoD, Department of Defense; Energy, Department of Energy; HHS, Department of Health and Human Services; NASA, National Aeronautics and Space Administration; NIH, National Institutes of Health; NSF, National Science Foundation. "Other" includes all other federal agencies.

<sup>2</sup> Row and column totals are automatically generated on the Web survey.

#### A. Computer and Information Sciences

Artificial intelligence Computer and information technology administration and management Computer science Computer software and media applications Computer systems analysis Computer systems networking and telecommunications

Data processing Information sciences, studies Information technology

### **B. Engineering**

1. Aerospace, Aeronautical, and Astronautical Engineering

Aerodynamics Aerospace engineering Space technology

#### 2. Bioengineering and Biomedical Engineering

Biological and biosystems engineering Biomaterials engineering Biomedical technology Medical engineering

#### 3. Chemical Engineering

Biochemical engineering Chemical and biomolecular engineering Engineering chemistry Paper science Petroleum refining process Polymer, plastics engineering

# 4. Civil Engineering

Architectural engineering Construction engineering Engineering management, administration Environmental, environmental health engineering Geotechnical and geoenvironmental engineering Sanitary engineering Structural engineering Surveying engineering Transportation and highway engineering Water resources engineering

#### 5. Electrical, Electronic, and Communications Engineering

Communications engineering Computer engineering Computer hardware engineering Computer software engineering Electrical and electronics engineering Laser and optical engineering Power Telecommunications engineering

#### 6. Industrial and Manufacturing Engineering

Industrial engineering Manufacturing engineering Operations research Systems engineering

## 7. Mechanical Engineering

Electromechanical engineering Mechatronics, robotics, and automation engineering

#### 8. Metallurgical and Materials Engineering

Ceramic sciences and engineering Geophysical, geological engineering Materials engineering Metallurgical engineering Mining and mineral engineering Textile sciences and engineering Welding

#### 9. Other Engineering

Agricultural engineering Engineering design Engineering mechanics, physics, and science Engineering physics Engineering science Forest engineering Nanotechnology Naval architecture and marine engineering Nuclear engineering Ocean engineering Petroleum engineering

Other engineering fields that cannot be classified using the fields listed above

Question 9 continues on next page.

	What were ye sciences fun sources will	ded by t	he fed	eral ag	gency	source									ean
				R&D		nditures (Dollars				ces <sup>1</sup>					
	(a)	(	b)	(c	:)	(d	-	(e	<del>?</del> )	(	f)	(	g)	(	h)
R&D Fields (Examples listed below	v) USDA	D	oD	Ene	rgy	HH include		NA	SA	N	SF	Ot	her	То	tal <sup>2</sup>
C. Geosciences, Atmospheric Sciences, and Ocean Sciences															
1. Atmospheric Science and Meteorology	\$(	D	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
2. Geological and Earth Sciences	+	D	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
<ol> <li>Ocean Science and Marine Sciences</li> </ol>	es \$(	D	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
4. Other Geosciences, Atmospheric Sciences, and Ocean Science	\$(	D\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
5. Total <sup>2</sup>	\$(	D	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
Sciences, and Ocean Science	•es \$(	 D\$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	

Key: USDA, Department of Agriculture; DoD, Department of Defense; Energy, Department of Energy; HHS, Department of Health and Human Services; NASA, National Aeronautics and Space Administration; NIH, National Institutes of Health; NSF, National Science Foundation. "Other" includes all other federal agencies.

<sup>2</sup> Row and column totals are automatically generated on the Web survey.

# Examples of Disciplines: Geosciences, Atmospheric Sciences, and Ocean Sciences Fields of R&D

### C. Geosciences, Atmospheric Sciences, and Ocean Sciences

1. Atmospheric Science and	2. Geological and Earth	3. Ocean Sciences and	4. Other Geosciences,
Meteorology	Sciences	Marine Sciences	Atmospheric Sciences,
Aeronomy Atmospheric chemistry and climatology Atmospheric physics and dynamics Extraterrestrial atmospheres Meteorology Solar Weather modification	Earth and planetary sciences Geochemistry Geodesy and gravity Geology Geomagnetism Geophysics and seismology Hydrology and water resources Minerology and petrology Paleomagnetism Paleontology Physical geography Stratigraphy and sedimentation Surveying	Biological oceanography Geological oceanography Marine biology Marine oceanography Marine sciences Oceanography, chemical and physical	and Ocean Sciences Other fields that cannot be classified using the fields listed above

Question 9D.
--------------

What were your FY 2023 R&D expenditures in the life sciences funded by the federal agency sources below? (R&D expenditures from nonfederal sources will be reported in Question 11.)

	R&D expenditures from federal sources <sup>1</sup> (Dollars in thousands)										
R&D Fields (Examples listed below) D. Life Sciences	(a) USDA	(b) DoD	(c) Energy	(d) HHS, includes NIH	(e) NASA	(f) NSF	(g) Other	(h) Total²			
1. Agricultural Sciences	<u></u> 0	<u></u> 0	\$0	\$0	<u>\$</u> 0	<u></u> 0	<u>\$</u> 0	\$0			
2. Biological and Biomedical Sciences	\$0	\$1040	\$0	<sub>\$</sub> 27176	\$0	\$_ <u>1130</u>	\$162	<sub>\$</sub> _29508			
3. Health Sciences	<u></u> \$12	<u></u> \$_247	<u>\$</u> 0	<sub>\$</sub> 26817	\$0	\$ <u>127</u>	<sub>\$</sub> _1937	<sub>\$</sub> 29140			
4. Natural Resources and Conservation	\$0	\$ <u>117</u>	\$0	\$0	\$0	\$23	\$115	<u></u> \$255			
5. Other Life Sciences	\$0	\$0	\$0	\$0	<u></u> \$0	\$0	<u></u> 90	\$0			
6. Total <sup>2</sup>	<u></u> 12	<sub>\$</sub> _1404	<u>\$</u> 0	<sub>\$</sub> 53993	<u></u> \$0	<sub>\$</sub> _1280	<sub>\$</sub> _2214	<sub>\$</sub> 58903			

<sup>1</sup> Key: USDA, Department of Agriculture; DoD, Department of Defense; Energy, Department of Energy; HHS, Department of Health and Human Services; NASA, National Aeronautics and Space Administration; NIH, National Institutes of Health; NSF, National Science Foundation. "Other" includes all other federal agencies.

<sup>2</sup> Row and column totals are automatically generated on the Web survey.

# Examples of Disciplines: Life Sciences Fields of R&D

# **D. Life Sciences**

#### 1. Agricultural Sciences

Agricultural business and management Agricultural chemistry Agricultural engineering-report in Engineering Agricultural production operations Animal sciences Applied horticulture and horticultural business services Aquaculture Food science and technology International agriculture Plant sciences Soil sciences Veterinary biomedical and clinical sciences Veterinary medicine Wood science

#### 2. Biological and Biomedical Sciences

Allergies and immunology Biochemistry, biophysics, and molecular biology Biogeography Biology and biomedical sciences, general Biomathematics, bioinformatics, and computational biology Biotechnology Botany and plant biology Cell, cellular biology, and anatomical sciences Epidemiology, ecology and population biology Food, nutrition, and wellness studies Genetics Microbiological sciences and immunology Molecular medicine Neurobiology and neuroscience Pharmacology and toxicology Physiology, pathology and related sciences Zoology, animal biology

#### 3. Health Sciences

Advanced, graduate dentistry and oral sciences Allied health and medical assisting services Bioethics, medical ethics Clinical medicine research Clinical/medical laboratory science/research and allied professions

Communication disorders sciences and services Dentistrv Dietetics and clinical nutrition services Health and medical administrative services Health, medical preparatory programs Gerontology, health sciences Kinesiology and exercise science Medical clinical science, graduate medical studies Medical illustration and informatics Medicine Mental health Nursina Optometry Osteopathic medicine, osteopathy Pharmacy, pharmaceutical sciences, and administration Podiatric medicine, podiatry Public health Radiological science

Registered nursing, nursing administration, nursing research and clinical nursing Rehabilitation and therapeutic professions Zoology

# 4. Natural Resources and Conservation

Fishing and fisheries sciences and management Forestry Natural resources conservation

and research Natural resources management

and policy Renewable natural resources Wildlife and wildlands science and management

#### 5. Other Life Sciences

Other life sciences that cannot be classified using the fields listed above

Q	Question 9E–G. What were your FY 2023 R&D expenditures in mathematics and statistics, the physical sciences, and psychology funded by the federal agency sources below? (R&D expenditures from nonfederal sources will be reported in Question 11.)															
					R&	D expe		es from s in thou			rces	1				
_		(a)														(h)
	<b>&amp;D Fields</b> (camples listed below)	USDA		DoD	E	nergy		HS, des NIH	NA	ASA		NSF	Other		Total <sup>2</sup>	
E.	Mathematics and Statistics	\$(	) \$	22	\$	0	\$	0	\$	0	\$_	445	\$	0	\$_	467
F.	Physical Sciences															
	1. Astronomy and Astrophysics	\$(	) \$	0	\$	0	\$	0	\$	0	\$_	0	\$	0	\$_	0
	2. Chemistry	\$(	) \$	0	\$	0	\$	95	\$	0	\$_	323	\$	15	\$	433
	3. Materials Science	\$(	) \$	0	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
	4. Physics	\$(	) \$	0	\$	568	\$	2	\$	6	\$_	606	\$	0	\$_	1182
	5. Other Physical Sciences	\$(	) \$	0	\$	0	\$	0	\$	0	\$_	0	\$	0	\$_	0
	6. Total <sup>2</sup>	\$(	<u>)</u> \$	0	\$	568	\$	97	\$	6	\$_	929	\$	15	\$	1615
G.	Psychology	\$(	<u>)</u> \$	79	\$	0	\$	2307	\$	0	\$_	111	\$	209	\$	2706

<sup>1</sup> Key: USDA, Department of Agriculture; DoD, Department of Defense; Energy, Department of Energy; HHS, Department of Health and Human Services; NASA, National Aeronautics and Space Administration; NIH, National Institutes of Health; NSF, National Science Foundation. "Other" includes all other federal agencies.

<sup>2</sup> Row and column totals are automatically generated on the Web survey.

# Examples of Disciplines: Mathematics and Statistics, Physical Sciences, and Psychology Fields of R&D

# E. Mathematics and Statistics

	Mathematics	Statistics	
F. Physical Sciences			
1. Astronomy and Astrophysics Astrophysics Planetary astronomy and science	2. Chemistry (except Biochemistry—report in Biological and Biomedical Sciences) Analytical chemistry Chemical physics Environmental chemistry Forensic chemistry Inorganic chemistry Organic chemistry Organo-metallic chemistry Physical chemistry Polymer chemistry Theoretical chemistry	3. Materials Science Materials chemistry Materials science 4. Physics Acoustics Atomic, molecular physics Condensed matter and materials physics Elementary particle physics Mathematical physics Nuclear physics Optics, optical sciences Plasma, high-temperature physics Theoretical physics	5. Other Physical Sciences Other physical sciences that cannot be classified using the fields listed above
G. Psychology			
Clinical psychology	Counseling and applied psychology	Human development	Research and experimental psychology

				nditures from (Dollars in thou		rces <sup>1</sup>			
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
<b>R&amp;D Fields</b> (Examples listed below)	USDA	DoD	Energy	HHS, includes NIH	NASA	NSF	Other	Total <sup>2</sup>	
H. Social Sciences									
1. Anthropology	<u></u> 0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
2. Economics	<u>\$</u> 0	<u>\$</u> 0	\$0	\$0	\$0	\$0	<u>\$</u> 0	\$0	
3. Political Science and Government	\$0	\$0	<u>\$</u> 0	\$0	\$0	\$0	\$0	\$0	
<ol> <li>Sociology, Demography, and Population Studies</li> </ol>	s0	<u>\$</u> 0	<u>\$</u> 0	<u>\$</u> 0	\$0	\$0	\$0	\$0	
5. Other Social Sciences	<u></u> 0	<u></u> 90	<u></u> 90	<u>\$</u> 0	\$0	<u></u> \$665	\$0	<u></u> 665	
6. Total <sup>2</sup>	\$0	<u>\$</u> 0	\$0	\$0	\$0	<u></u> \$665	\$0	<u></u> \$665	
I. Other Sciences	s0	\$0	\$0	\$0	\$0	<u></u> \$43	\$0	<sub>\$</sub> 43	

<sup>1</sup> Key: USDA, Department of Agriculture; DoD, Department of Defense; Energy, Department of Energy; HHS, Department of Health and Human Services; NASA, National Aeronautics and Space Administration; NIH, National Institutes of Health; NSF, National Science Foundation. "Other" includes all other federal agencies.

<sup>2</sup> Row and column totals are automatically generated on the Web survey.

# Examples of Disciplines: Social Sciences and Other Sciences Fields of R&D

### **H. Social Sciences**

#### 1. Anthropology

Cultural anthropology Medical anthropology Physical and biological anthropology

#### 2. Economics

Agricultural economics Applied economics Business development Development economics and international development Econometrics and quantitative economics Industrial economics International economics Labor economics Managerial economics Natural resource economics Public finance and fiscal policy

3. Political Science and Government

Comparative government Government Legal systems Political economy Political science Political theory

### 4. Sociology, Demography, and Population Studies

Comparative and historical sociology Complex organizations Cultural and social structure Demography and population studies Group interactions Rural sociology Social problems and welfare theory Sociology

### 5. Other Social Sciences

Archeology Area, ethnic, cultural, gender, and group studies Cartography Criminal science and corrections Criminology Geography Gerontology, social sciences History and philosophy of science and technology International relations and national security studies Linguistics Public policy analysis **Regional studies** Urban studies, affairs

#### I. Other Sciences

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

fun	funded by the federal agency sources below? (R&D expenditures from nonfederal sources will be reported in Question 11.)												
				nditures from (Dollars in thou		rces <sup>1</sup>							
R&D Fields	(a)	(b)	(c)	(d) HHS,	(e)	(f)	(g)	(h)					
(Examples listed below)	USDA	DoD	Energy	includes NIH	NASA	NSF	Other	Total <sup>2</sup>					
J. Non-S&E Fields													
1. Business Management and Business Administration	<u>\$</u> 0	<u></u> \$24	\$0	\$0	<u>\$</u> 0	\$0	\$0	<u></u> \$24					
2. Communication and Communications Technologies	<u>\$</u> 0	<u></u> \$0	<u>\$</u> 0	<u>\$</u> 0	<u>\$</u> 0	\$0	\$ <u>0</u>	\$0					
3. Education	<u></u> 90	\$0	<u>\$</u> 0	<u></u> \$302	<u></u> 90	<sub>\$</sub> _1787	<u></u> 192	<sub>\$</sub> _2281					
4. Humanities	<u>\$</u> 0	\$0	<u>\$</u> 0	\$0	\$0	§59	<sub>\$</sub> 191	<u></u> \$250					
5. Law	<u></u> 0	<u></u> 0	<u></u> 0	<u></u> \$0	\$0	<u></u> 0	<u></u> 0	<u></u> 0					
6. Social Work	<u></u> 0	<u></u> 0	<u></u> 0	<u></u> \$0	\$0	<u></u> 0	<u></u> 0	<u></u> 0					
7. Visual and Performing Arts	<u>\$</u> 0	<u>\$</u> 0	\$0	\$0	\$0	<u></u> \$20	<u>\$</u> 0	<u></u> \$20					
8. Other Non-S&E Fields	<u></u> \$16	\$ <u>98</u>	<u>\$</u> 0	<u></u> 4424	\$0	<u></u> \$418	<u></u> \$166	<sub>\$</sub> 5122					
9. Total <sup>2</sup>	<u></u> \$16	<u></u> 122	<u></u> \$0	<sub>\$</sub> 4726	\$0	<sub>\$</sub> _2284	<u></u> \$549	<sub>\$</sub> _7697					
K. Total for All Fields of R&D <sup>2</sup>	<u></u> \$231	<sub>\$</sub> 15008	<sub>\$</sub> 2239	<sub>\$</sub> 66855	<u></u> \$434	<sub>\$</sub> 16875	<sub>\$</sub> 7082	\$ 108724					

Total for row K, column h should equal Total for Question 1, row a.

<sup>1</sup> Key: USDA, Department of Agriculture; DoD, Department of Defense; Energy, Department of Energy; HHS, Department of Health and Human Services; NASA, National Aeronautics and Space Administration; NIH, National Institutes of Health; NSF, National Science Foundation. "Other" includes all other federal agencies.

<sup>2</sup> Row and column totals are automatically generated on the Web survey.

## J. Non-S&E Fields

1. Business Management and Business Administration

Business administration Business management Business, managerial economics Management information systems and services Marketing management and research

#### 2. Communication and Communications Technologies

Communication and media studies Communications technologies Journalism Radio, television, and digital communication

#### 3. Education

Education administration and supervision Education research Teacher education, specific levels and methods Teaching fields

#### 4. Humanities

English language and literature, letters Foreign languages and literatures History Humanities, general Liberal arts and sciences Philosophy and religious studies Theology and religious vocations 5. Law Law Legal studies

6. Social Work

(no specific examples)

#### 7. Visual and Performing Arts

Drama, theatre arts and stagecraft Film, video, and photographic arts Fine and studio arts Music

#### 8. Other Non-S&E Fields

Architecture City, urban, community and regional planning Family, consumer sciences and human sciences Landscape architecture Library science Military technology and applied science Parks, sports, recreation, leisure and fitness Public administration and public affairs Other non-S&E fields that cannot be classified using the fields listed above Also, use this category for R&D that involves multiple non-S&E

Also, use this category for R&D that involves multiple non-S&E fields if it is impossible to report multidisciplinary or interdisciplinary R&D expenditures in specific fields.

Question	10. Of the amount reported for Other federal sources in Question 9 (r which agencies funded this R&D, and how much of the reported a each agency?	
	If your institution reported \$0 in Question 9, row K, column g, skip this question and go to Question 11.	
	<ul> <li>Use rows a–j to list up to 10 agencies that funded the largest R&amp;D</li> <li>Use row k to report any remaining amount.</li> <li>For subrecipient funding in this question, list the sponsor of the original content of the departments, agencies and subagencies is include web survey question.</li> </ul>	ginal award. ed as a link on the
Federal	agencies (list up to 10)	R&D expenditures (Dollars in thousands)
a.	Department of Transportation (DOT)	\$1684
b.	Federal Emergency Management Agency (FEMA)	\$1076
C.	National Endowment for the Humanities (NEH)	\$904
d.	Department of Education (ED)	\$ <u>840</u>
e.	Department of Justice (DOJ)	<u>\$</u> 642
f.	Department of Commerce	<u></u> \$422
g.	Environmental Protection Agency (EPA)	<u></u> \$392
h.	Department of Veterans Affairs (VA)	\$ <u>310</u>
i.	Department of State (DOS)	<u></u> \$258
j.	Department of the Interior	\$ <u>147</u>
k.	Other agencies included in Question 9, column g, but not listed above	\$407
I.	Total (should match Question 9, row K, column g) <sup>1</sup>	\$7082
<sup>1</sup> The colun	nn total is automatically generated on the Web survey.	

Question 11A–B. What were your FY 2023 R&D expenditures in the computer and information sciences and engineering fields funded by the nonfederal sources below?												
<ul> <li>The totals in row K, page 24 should match the corresponding sources in Question 1, rows b–f.</li> <li>If an individual project involves more than one of the 40 fields of R&amp;D, please prorate expenditures when possible and report the amount for each field involved.</li> </ul>												
R&D expenditures from nonfederal sources (Dollars in thousands)												
	State and Other										(f)	
<b>R&amp;D Fields</b> (See Question 9, p. 13)		ocal ernmen	t Bu	isiness		onprofit		titutional funds		nfederal ources	т	otal <sup>1</sup>
A. Computer and Information Sciences         §         0         §         0         §         32         §         1288         §         37         §         1357												
B. Engineering												
1. Aerospace, Aeronautical, and Astronautical Engineering	\$_	0	\$_	0	\$_	0	\$	0	\$_	0	\$	0
2. Bioengineering and Biomedical Engineering	\$_	60	\$_	420	\$_	492	\$	2368	\$	27	\$	3367
3. Chemical Engineering	\$_	12	\$_	55	\$_	119	\$	819	\$	31	\$	1036
4. Civil Engineering	\$_	136	\$_	152	\$_	680	\$	675	\$	3	\$	1646
5. Electrical, Electronic, and Communications Engineering	\$_	0	\$_	0	\$_	21	\$	388	\$	89	\$	498
6. Industrial and Manufacturing Engineering	\$_	0	\$_	0	\$_	0	\$	0	\$	0	\$	0
7. Mechanical Engineering	\$	67	\$_	69	\$_	38	\$	1765	\$_	0	\$	1939
8. Metallurgical and Materials Engineering	\$_	145	\$_	91	\$_	79	\$	2229	\$	421	\$	2965
9. Other Engineering	\$_	0	\$_	0	\$_	3	\$	1184	\$_	0	\$	1187
10. <b>Total</b> <sup>1</sup>	\$_	420	\$_	787	\$_	1432	\$	9428	\$	571	<u></u> 1	2638
<sup>1</sup> Row and column totals are automatically	/ genei	rated on	the We	b survey								

Examples of disciplines for the above fields of R&D are listed on page 13.

Question 11C–D. What were your FY 2023 R&D expenditures in the R&D fields listed below funded by the nonfederal sources below?												
		R&D expenditures from nonfederal sources (Dollars in thousands)										
<b>R&amp;D Fields</b> (See Question 9, pp. 14–15)	State	(a) State and Iocal government		(b) siness		(c) onprofit inizations	Institu	(d) Institutional funds		(e) ther federal urces	(i Toi	
C. Geosciences, Atmospheric Scier	C					organizatione		Tunus				
1. Atmospheric Science and Meteorology	\$	0	\$	0	\$_	0	\$	0	\$	0	\$	0
2. Geological and Earth Sciences	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
3. Ocean Sciences and Marine Sciences	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
<ol> <li>Other Geosciences, Atmospheric Sciences, and Ocean Sciences</li> </ol>	\$	0	\$	0	\$_	0	\$	0	\$	0	\$	0
5. Total <sup>1</sup>	\$	0	\$	0	\$_	0	\$	0	\$	0	\$	0
D. Life Sciences												
1. Agricultural Sciences	\$	0	\$	0	\$	0	\$	0	\$	0	\$	0
2. Biological and Biomedical Sciences	<u></u> 1	147	\$	68	\$_	1503	<u></u> 10	748	\$	467	<sub>\$</sub> 13	933
3. Health Sciences	\$_19	966	\$	737	\$	2862	<sub>\$</sub> 12	200	\$	1247	<sub>\$</sub> 19	012
4. Natural Resources and Conservation	\$	481	\$	55	\$_	949	\$	883	\$	16	<u></u> \$_2	384
5. Other Life Sciences	\$	0	\$	0	\$_	0	\$	0	\$	0	\$	0
6. Total <sup>1</sup>	\$_3	594	\$	860	\$	5314	<sub>\$</sub> _23	831	\$	1730	<sub>\$</sub> 35	329
<sup>1</sup> Row and column totals are automatically	y generat	ed on the	e Web	survey.								

Examples of disciplines for the above fields of R&D are listed on pages 14–15.

# Question 11E–I. What were your FY 2023 R&D expenditures in the R&D fields listed below funded by the nonfederal sources below?

	R&D expenditures from nonfederal sources (Dollars in thousands)										
	(a) State and	(b)	(c)	(d)	(e) Other	(f)					
<b>R&amp;D Fields</b> (See Question 9, pp. 16–17)	local government	Business	Nonprofit organizations	Institutional funds	nonfederal sources	Total <sup>1</sup>					
E. Mathematics and Statistics	<u></u> \$0	\$0	\$ <mark>8</mark>	<u></u> 142	\$0	\$ <u>150</u>					
F. Physical Sciences											
1. Astronomy and Astrophysics	\$0	<u></u> 0	\$0	\$0	\$0	<u>\$</u> 0					
2. Chemistry	\$91	\$0	\$0	<u></u> \$ 1003	\$0	<u></u> \$_1094					
3. Materials Science	\$0	\$0	\$0	\$0	\$0	\$0					
4. Physics	\$0	<u></u> 0	\$60	\$ <u>333</u>	\$0	§393					
5. Other Physical Sciences	\$0	<u></u> 90	\$0	\$0	\$0	<u>\$</u> 0					
6. Total <sup>1</sup>	\$91	\$0	<u></u> 60	<sub>\$</sub> _1336	\$0	\$_1487					
G. Psychology	\$33	<u></u> \$0	<sub>\$</sub> _473	<sub>\$</sub> 840	<sub>\$</sub> 284	<u></u> \$_1630					
H. Social Sciences											
1. Anthropology	<u></u> \$0	<u>\$</u> 0	<u></u> 90	<u>\$</u> 0	\$0	<u>\$</u> 0					
2. Economics	<u></u> \$0	<u></u> \$_0	<u></u> \$0	<u>\$</u> 0	<u></u> \$_0	<u></u> 90					
3. Political Science and Government	\$0	<u></u> 0	\$86	\$72	<u></u> 0	<u></u> \$158					
4. Sociology, Demography, and Population Studies	\$0	\$0	\$0	<u></u> 51	\$0	\$51					
5. Other Social Sciences	<u></u> \$31	\$0	<u></u> 464	<sub>\$</sub> 370	\$0	\$ <u>865</u>					
6. Total <sup>1</sup>	<u></u> \$31	\$0	<sub>\$</sub> _550	<u></u> \$493	\$0	\$_1074					
I. Other Sciences	<u></u> 69	<u></u> \$14	<sub>\$</sub> 269	<sub>\$</sub> _1267	\$0	<u></u> \$_1619					
<sup>1</sup> Row and column totals are automatical	ly generated on the	e Web survey.									

<sup>1</sup> Row and column totals are automatically generated on the Web survey.

Examples of disciplines for the above fields of R&D are listed on pages 16–17.

# Question 11J–K. What were your FY 2023 R&D expenditures in the non-science and engineering (non-S&E) fields funded by the nonfederal sources below?

	R&D expenditures from nonfederal sources (Dollars in thousands)						
R&D Fields	(a) State and local	(b)	(c) Nonprofit	(d) Institutional	(e) Other nonfederal	(f)	
(See Question 9, p. 19)	government	Business	organizations	funds	sources	Total <sup>1</sup>	
J. Non-S&E Fields							
1. Business Management and Business Administration	\$0	<u></u> \$10	\$0	\$ <u>97</u>	\$0	<u></u> \$107	
2. Communication and Communications Technologies	\$0	<u>\$</u> 0	\$0	\$ <u>51</u>	\$1	<u></u> \$52	
3. Education	<u></u> \$85	<u></u> 41	<u></u> \$77	<sub>\$</sub> 683	\$0	§ <u>886</u>	
4. Humanities	<u>\$</u> 9	\$15	<sub>\$</sub> 159	<sub>\$</sub> 280	<sub>\$</sub> 56	<u></u> \$519	
5. Law	<u></u> \$0	<u>\$</u> 0	<u>\$</u> 0	<u></u> \$21	<u></u> \$0	<u></u> \$21	
6. Social Work	\$0	<u>\$</u> 0	\$0	<u>\$</u> 0	\$0	<u>\$</u> 0	
7. Visual and Performing Arts	\$ <b>30</b>	<u>\$</u> 0	\$ <b>28</b>	<u></u> 314	\$5	<u>\$</u> 377	
8. Other Non-S&E Fields	<u></u> 102	<u>\$</u> 0	§73	<sub>\$</sub> _3325	<sub>\$</sub> 113	<sub>\$</sub> _3613	
9. Total <sup>1</sup>	<sub>\$</sub> 226	\$ <u>66</u>	<sub>\$</sub> 337	<sub>\$</sub> _4771	<sub>\$</sub> 175	<sub>\$</sub> _5575	
K. Total for All Fields of R&D <sup>1</sup>	\$4464	<sub>\$_</sub> 1727	<sub>\$</sub> _8475	<sub>\$</sub> 43396	<sub>\$</sub> _2797	<sub>\$</sub> 60859	
Totals in row K columns a c should match corresponding sources in Question 1, rows h f							

Totals in row K, columns a-e should match corresponding sources in Question 1, rows b-f.

<sup>1</sup> Row and column totals are automatically generated on the Web survey.

Examples of disciplines for non-S&E fields of R&D are listed on page 19.

Quest	tion 12.	Of the total amount of R&D expenditures reported in Question 1, row g, what the amounts for the following types of costs?	were
		<ul> <li>Please report only direct costs (including cost sharing) in rows a–e.</li> <li>Recovered and unrecovered indirect costs should be reported in rows f1 and</li> </ul>	f2.
			R&D expenditures (Dollars in thousands)
a.	Include ( tempora	e, wages, and fringe benefits compensation for all R&D personnel whether full-time or part-time, iry or permanent. Include salaries, wages, and fringe benefits paid ur institution's funds and from external support.	<sub>\$</sub> 78407
b.	All paym	<b>e purchases</b> nents for software. Include both purchases of software packages nse fees for systems.	
	1. Non	icapitalized software	\$0
	-	italized software (If you are unable to distinguish capitalized ware from capitalized equipment, report both in row c.)	\$ <u>417</u>
c.	Paymen	<b>zed equipment</b> ts for movable equipment exceeding your institution's capitalization d. Include ancillary costs such as delivery and setup.	<sub>\$</sub> 5469
d.		roughs to other universities or organizations match the total in Question 8, row e, column 3)	<sub>\$</sub> 21382
e.	Other co (but not	i <b>rect costs</b> osts that do not fit into one of the above categories, including limited to) travel, tuition waivers, services such as consulting, er usage fees, and supplies.	<sub>\$</sub> 26912
f.	Indirect	costs	
	Reir	overed indirect costs\$ 28188mbursement of Facilities and Administrative (F&A) costs\$ (Confidential1)mexternal sponsors(Confidential1)	
		ecovered indirect costs build equal Question 1, row e3) \$ 8808 (Confidential <sup>1</sup> )	
	3. Tota	al indirect costs <sup>2</sup>	<u></u> \$36996
g.	<b>Total</b> <sup>2</sup> (should	match total from Question 1, row g)	<sub>\$</sub> 169583
publi resp Cybe	ications. In onses will r ersecurity E	n confidential items is not published or released for individual institutions; only aggregate totals accordance with the National Science Foundation Act of 1950, as amended, and other applica not be disclosed in identifiable form to anyone other than agency employees or authorized persentancement Act of 2015, your data are protected from cybersecurity risks through screening of ansmit your data.	able federal laws, your sons. Per the Federal

<sup>2</sup> Totals are automatically generated on the Web survey.

Question 13.	At the end of FY 2023, what were your institution's capitalization thresholds for software and equipment?				
			(Dollars in	thousands)	
		50	ftware	Equipment	
Capitaliz	zation thresholds	\$	5.0	\$ <u>5.0</u>	

# Question 14A–C. For the R&D fields below, what portion of your FY 2023 R&D expenditures went for the purchase of capitalized R&D equipment?

• Question 14 total (row K, column c) should match Question 12, row c (Capitalized equipment).

			Rð	&D equipm (Dollars	nent exper in thousar			
	<b>R&amp;D Fields</b> (See Question 9, pp. 13–14)		(a) ederal	Nor	(b) Nonfederal		(c) Total¹	
Α.	Computer and Information Sciences	\$	0	\$	0	\$	0	
В.	Engineering							
	1. Aerospace, Aeronautical, and Astronautical Engineering	\$	0	\$	0	\$	0	
	2. Bioengineering and Biomedical Engineering	\$	72	\$	350	\$	422	
	3. Chemical Engineering	\$	154	\$	159	\$	313	
	4. Civil Engineering	\$	228	\$	32	\$	260	
	5. Electrical, Electronic, and Communications Engineering	\$	82	\$	63	\$	145	
	6. Industrial and Manufacturing Engineering	\$	0	\$	0	\$	0	
	7. Mechanical Engineering	\$	1341	\$	931	\$	2272	
	8. Metallurgical and Materials Engineering	\$	504	\$	180	\$	684	
	9. Other Engineering	\$	0	\$	0	\$	0	
	10. Total <sup>1</sup>	\$	2381	\$	1715	\$	4096	
C.	Geosciences, Atmospheric Sciences, and Ocean Sciences							
	1. Atmospheric Science and Meteorology	\$	0	\$	0	\$	0	
	2. Geological and Earth Sciences	\$	0	\$	0	\$	0	
	3. Ocean Sciences and Marine Sciences	\$	0	\$	0	\$	0	
	<ol> <li>Other Geosciences, Atmospheric Sciences, and Ocean Sciences</li> </ol>	\$	0	\$	0	\$	0	
	5. Total <sup>1</sup>	\$	0	\$	0	\$	0	
1	Row and column totals are automatically generated on the Web survey							

Examples of disciplines for the above fields of R&D are listed on pages 13–14.

C	Question 14D–I. For the R&D fields below, what portion of your FY 2023 R&D expenditures went for the purchase of capitalized R&D equipment?						
		R&D equipment expenditures (Dollars in thousands)					
	<b>D Fields</b> ee Question 9, pp. 15–17)	F	(a) ederal		(b) federal	т	(c) otal <sup>1</sup>
	Life Sciences	•		non	leactar		otai
	1. Agricultural Sciences	\$	0	\$	0	\$	0
	2. Biological and Biomedical Sciences	\$	243	\$	222	\$	465
	3. Health Sciences	\$	0	\$	115	\$	115
	4. Natural Resources and Conservation	\$	0	\$	13	\$	13
	5. Other Life Sciences	\$	0	\$	0	\$	0
	6. Total <sup>1</sup>	\$	243	\$	350	\$	593
E.	Mathematics and Statistics	\$	0	\$	0	\$	0
F.	Physical Sciences						
	1. Astronomy and Astrophysics	\$	0	\$	0	\$	0
	2. Chemistry	\$	28	\$	643	\$	671
	3. Materials Science	\$	0	\$	0	\$	0
	4. Physics	\$	0	\$	2	\$	2
	5. Other Physical Sciences	\$	0	\$	0	\$	0
	6. Total <sup>1</sup>	\$	28	\$	645	\$	673
G.	Psychology	\$	0	\$	85	\$	85
Н.	Social Sciences						
	1. Anthropology	\$	0	\$	0	\$	0
	2. Economics	\$	0	\$	0	\$	0
	3. Political Science and Government	\$	0	\$	0	\$	0
	4. Sociology, Demography, and Population Studies	\$	0	\$	0	\$	0
	5. Other Social Sciences	\$	0	\$	0	\$	0
	6. Total <sup>1</sup>	\$	0	\$	0	\$	0
Ι.	Other Sciences	\$	0	\$	8	\$	8
1	Row and column totals are automatically generated on the Web survey						
Exa	Examples of disciplines for the above fields of R&D are listed on pages 15–17.						

Question 14 continues on next page.

Question 14J–K. For the non-science and engineering (non-S&E) R&D fields below, what portion of your FY 2023 R&D expenditures went for the purchase of capitalized R&D equipment?							
	R	&D equipment expe (Dollars in thousa					
<b>R&amp;D Fields</b> (See Question 9, p. 19)	(a) Federal	(b) Nonfederal	(c) Total¹				
J. Non-S&E Fields							
1. Business Management and Business Administration	\$0	\$0	\$0				
2. Communication and Communications Technologies	<u></u> 0	\$0	\$0				
3. Education	<u></u> 0	\$0	\$0				
4. Humanities	\$0	\$0	\$0				
5. Law	<u></u> 0	\$0	\$0				
6. Social Work	\$0	\$0	\$0				
7. Visual and Performing Arts	\$0	\$14	\$14				
8. Other Non-S&E Fields	\$0	\$0	\$0				
9. Total <sup>1</sup>	s0	\$ <u>14</u>	\$ <u>14</u>				
K. Total for All Fields of R&D <sup>1</sup> § 2652         § 2817         § 5469							
Total for row K, column c, should match Question 12, row c (C	apitalized equ	ipment).					
<sup>1</sup> Row and column totals are automatically generated on the Web survey.							

Examples of disciplines for non-S&E fields of R&D are listed on page 19.

#### Question 15. How many personnel (headcount) worked in the functions listed below in FY 2023, and in which demographic and educational categories would these personnel be placed? Headcount by sex, citizenship, and highest level of education is confidential<sup>1</sup>. Total headcount by research function (row A) will be published by institution. Include each person only once in headcount. If they performed work in two roles (e.g., researcher and technician), include them in the headcount for their predominant role. Include all personnel and students paid from R&D accounts regardless of how much they were paid. Pay could be a salary, a stipend, or tuition remission. Exclude personnel that would be considered indirect research support such as research administration and other personnel not paid for work on specific research projects. **Functions** are defined primarily by the nature of the employee's work, not the employee's level of education. Depending on the nature of their work, a student could be placed in any functional category. See page 30 for a description of each R&D function. (d) (b) (c) (a) R&D **R&D** support Total<sup>2</sup> Researchers technicians staff 1422 477 612 2511 A. Total R&D personnel B. Sex<sup>1</sup> 746 313 387 1446 1. Female 673 160 223 1056 2. Male 3 2 9 3. Sex unknown or not stated 4 C. Citizenship<sup>1</sup> 1. U.S. citizens and permanent residents (non-U.S. 1069 440 508 2017 citizens holding Green Cards) 0 0 0 0 2. Foreign nationals holding temporary visas 353 37 104 494 3. Citizenship or residency status unknown or not stated Researchers D. Highest level of education completed<sup>1</sup> only 1. Doctorate (e.g., PhD, DSc, EdD) Unavailable 2. Professional degree (e.g., JD, LLB, MD, DDS, DVM) Unavailable Do not include highest level of education 3. Master's degree (e.g., MS, MA, MBA) Unavailable for R&D technicians or R&D support staff. 4. Less than Master's Unavailable 5. Education level unknown or not stated Unavailable

<sup>1</sup> 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. Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the federal information systems that transmit your data.

<sup>2</sup> Totals are automatically generated on the Web survey.

Description of R&D Functions					
Researchers	R&D technicians	R&D support staff			
Professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned. Include R&D managers in this category.	Persons whose main tasks require technical knowledge and experience in one or more fields of science or engineering, but who contribute to R&D by performing technical tasks such as computer programming, data analysis, ensuring accurate testing, operating lab equipment, and preparing and processing samples under the supervision of researchers.	Not directly involved with the conduct of a research project but support the researchers and technicians. These employees might include clerical staff, financial and personnel administrators, report writers, patent agents, safety trainers, equipment specialists, and other related employees.			
	Researcher versus R&D technician	1			

Researchers contribute more to the creative aspects of R&D whereas technicians provide technical support. For example, a researcher would design an experiment, and a technician would run the experiment and assist in analyzing results.

Question 16.	How many full-time equivalents (FTEs) w	worked in the functions listed below in FY 2023?			
<ul> <li>All personnel counted in Question 15 should be included in FTE calculations; however, we would expect FTEs to be less than headcounts.</li> <li>FTEs for this question are calculated as the total working effort spent on research during your fiscal year divided by the total effort representing one full-time schedule within the same period. See table below this question for examples of FTE calculations.</li> <li>An individual cannot be more than 1.0 FTE. An individual counted as 1.0 FTE for this question, would spend 100% of their working effort on research. If an individual exceeds 1.0 research FTE based on your standard calculations, adjust down to 1.0.</li> <li>See Question 15 for descriptions of each function.</li> </ul>					
	(roun	FTEs nd to 1 decimal place)			
a. Researc	hers	1259.1			
b. R&D teo	hnicians	353.0			
c. R&D su	oport staff	582.5			
d. Total <sup>1</sup>		2194.6			
<sup>1</sup> Total is automa	tically generated on the Web survey.				

# **Examples of FTE Calculations**

# Using labor hours:

The following examples assume a 40-hour work week during a 49-week work year (1,960 hours), which excludes 3 weeks for vacation, holidays, etc. However, you should use the hours per week and weeks per year that typically represent a full-time employee at your organization.

- 10 researchers who spent a combined 13,720 hours on research: 13,720/1,960 = 7.0 FTE
- 1 researcher who works on research 20% of the time for 20 weeks, 50% of the time for another 20 weeks, and full-time for 9 weeks: ((20% \* 20) + (60% \* 20) + 9)/ 49 = 0.5 FTE
- 2 research technicians who worked exclusively on research but only for 32 weeks: (2 \* (32 \* 40))/1,960 = 1.3 FTE
- 10 student employees during the summer who each worked on research full-time time for 10 weeks: 10 \* (10/49) = 2.0 FTE

# Using salary:

FTE must be calculated for each individual and then summed for institution reporting.

- 1 researcher with a \$150,000 salary who was employed the entire year and \$120,000 of salary came from R&D accounts: 120,000/150,000 = 0.8 FTE
- 1 research support staff member with a \$60,000 salary for a 9-month appointment, of which \$40,000 came from R&D accounts: (40,000/60,000) \* (9/12) = 0.5 FTE

Q	u	es	ti	ο	n	1	7	
---	---	----	----	---	---	---	---	--

Primary Contact Information. Please complete the contact information for the person responsible for the survey.								
Name	Patricia Dalessandro	Patricia Dalessandro						
Job Title	Associate Vice Presid	Associate Vice President and Comptroller						
Institution name	Drexel University							
Office/Department	Office of the Comptrol	ller						
Mailing address (line 1)								
Mailing address (line 2)	3141 Chestnut Street,	Suite 225						
City, state, and ZIP Code	Philadelphia PA 19104							
Phone number	215-571-4478	215-571-4478 E-mail address pjr27@drexel.edu						
account. Job Title should inclu	Other Contact Information. List individuals who should be copied on all e-mails about the survey or can create a login account. Job Title should include information about office/department as appropriate (e.g., VP of Sponsored Programs, Department of Finance Manager, Analyst II in Grants Management).							
Name	Evgeniya Belokon							
Job Title	Assistant Director							
Phone Number	215-895-6327	E-mail address	evb29@drexel.edu					
Other Contact 2								
Name	Gabrielle Berrios							
Job Title	Associate Director							
Phone Number	215-895-1730	E-mail address	gc33@drexel.edu					
Other Contact 3								
Name	Evelyn Balabis							
Job Title	Executive Director							
Phone Number	215-895-2946	E-mail address	eb545@drexel.edu					