NATIONAL CENTER FOR SCIENCE AND ENGINEERING STATISTICS

Federal Facilities Research and Development (FFRD) Survey Fiscal Year (FY) 2022

Please submit your survey data by *November 17, 2023*.

The FY 2022 FFRD Survey is the first national effort to collect information on research and experimental development (R&D) performed at federal facilities and fills a critical gap in data on the U.S. performance of R&D. Your facility's data are critical to collecting high-quality information on R&D activity within federal facilities. NSF will use the collected information to produce critical national estimates of spending on R&D, and will make the facility level data from this survey available to the public through data tables and other resources on our website.

NSF is authorized to collect this information under Sections 1861-1876 of the National Science Foundation Act of 1950, as amended and Section 505 of the America COMPETES Reauthorization Act of 2010.

The White House Office of Science and Technology Policy (OSTP) has endorsed this study:

> *The White House Office of Science and Technology Policy (OSTP) strongly encourages agency and facility participation in the Federal Facilities R&D Survey. This new NCSES survey will fill in a long-standing gap in our national R&D data: federal facilities. OSTP is interested in tracking funding trends and making apples-to-apples comparisons between federal and non-federal R&D performers, both domestically and internationally. These data are also increasingly important in our analysis of global R&D competitiveness in domains where federal facilities play an outsized role. The generation of a first-ever master list of federal laboratories and related facilities would be of unambiguous benefit to policy makers, especially when whole-of-government research responses are necessary, such as for tackling climate change or pandemic preparedness.*
>
> *Kei Koizumi, Principal Deputy Director for Policy*
> *Joel Parriott, Assistant Director for Federal R&D*

To submit your data online:

https://nsf-ffrd.org

The web survey is the **recommended method** for submitting the questionnaire. It includes several automated features for your convenience. If you are unable to submit the questionnaire online, please email your completed survey PDF to technical support.

Technical Support

support@nsf-ffrd.org

(888) 882-0021

General Survey Questions

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

Thank you for your participation.

Survey Instructions and Definitions

Instructions

This form is intended to serve as a worksheet for use offline, but can be used to submit your response if completing the web survey is not possible. If compiling answers using this worksheet, use Adobe Acrobat to have access to full functionality. Otherwise, you may need to calculate totals to ensure certain values match subsequent questions, where applicable.

- The questions in this survey are divided into several sections. Some sections may require assistance from other offices or individuals within your facility or agency or may be best completed by a different individual than yourself.
- If exact information is unknown, estimates are acceptable. Certain questions include a checkbox where you can indicate that the information is estimated. *Note: please use this feature only if absolutely necessary. We encourage you to have each section completed by the staff member with access to the most complete data.*
- Please share relevant information about your responses in the comment boxes below each question, such as:
  - How you calculated your response.
  - Any assumptions you made coming up with your response.
  - Which offices were involved in preparing the response.
  - If applicable, an explanation for why you cannot answer a particular question.

Definitions and Questions About Key Terms

What is a Research & Development (R&D) facility?

For this survey, a **facility** is a unit in your agency that is responsible for performing R&D, generally with its own distinct budget and leadership. This may be a division, branch, center, lab, or other entity. The staff who work within the facility, and the facility itself, may be located in more than one physical location.

What fiscal year should I report for?

Please report R&D activities and expenditures for your facility's **2022 fiscal year (October 1, 2021 through September 30, 2022)**.

What is research and development (R&D)? [Source: Office of Management and Budget (OMB) Circular A11; Frascati Manual, 2015]

R&D comprises creative and systematic work undertaken in order to increase the stock of knowledge—including knowledge of people, culture, and society—and to devise new applications using available knowledge. R&D has five major features:

- **Novel:** Advances current knowledge or creates new knowledge
- **Creative:** Focuses on original concepts and hypotheses
- **Uncertain:** Outcomes are not completely determined at the outset of a project
- **Systematic:** Projects are planned and budgeted
- **Transferable/Reproducible:** Methodology and results are transferable to or reproducible in other situations and locations

This questionnaire asks about three different types of R&D your facility may conduct:

- **Basic research** is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts. Basic research may include activities with broad or general applications in mind, such as the study of how plant genomes change, but should exclude research directed toward a specific application or requirement, such as the optimization of the genome of a specific crop species.
- **Applied research** is original investigation undertaken to acquire new knowledge. It is directed primarily toward a specific, practical aim or objective.
- **Experimental development** is systematic work, drawing on knowledge gained from research and practical experience, which is directed at producing new products or processes, or improving existing products or processes. Like research, experimental development will result in gaining additional knowledge.

Experimental development includes:

  - Producing materials, devices, and systems or methods, including designing, constructing, and testing experimental prototypes.
  - Technology demonstrations, in cases where a system or component is demonstrated at scale for the first time, and additional refinements to the design (feedback R&D) are expected following the demonstration. However, not all "technology demonstrations" are R&D.

*Experimental development **does not** include:*

  - User demonstrations where the cost and benefits of a system are being validated for a specific use case. This includes low-rate initial production activities.
  - Pre-production development, which is defined as non-experimental work on a product or system before it goes into full production, including activities such as tooling and development of production facilities. Activities and programs of this type should generally be reported as investments in other major equipment.

QUESTIONNAIRE SECTION 1—R&D Performance at Your Facility

What should I include in my answers for questions 1–5?

Please report your facility's FY 2022 **expenditures** for R&D, meaning the money that was spent in FY 2022 for R&D projects. These costs are sometimes also referred to as outlays.

Note the survey is not collecting appropriation or obligation totals, only final FY expenditures/outlays for R&D performed within the facility.

Include:

- Labor costs for R&D projects
- Non-capital purchases of materials, supplies, equipment, and services to support R&D performance
- General administration costs in support of R&D activities

QUESTIONNAIRE SECTION 2—R&D Funding to Other Organizations

What types of R&D funding to other organizations should I include in my answers for questions 6–8?

- All expenditures for funding awarded by your facility to any external recipient to perform R&D activities
- Contracts, grants, cooperative agreements, and interagency agreements

QUESTIONNAIRE SECTION 3—R&D Personnel

Who are R&D personnel?

R&D personnel include all employees who work on R&D or provide direct support to R&D, such as researchers, R&D managers, technicians, support staff, and others assigned to R&D groups or projects. Personnel may include federal employees, military personnel (civilian and enlisted), contractors, consultants, or volunteers.

Include:

- All R&D personnel, whether full-time or part-time, temporary or permanent. Employees may perform scientific and technical work for an R&D project (e.g., designing experiments, building prototypes), plan and manage R&D projects, or provide *direct* support for administration of the financial and personnel aspects of R&D.

Do not include:

- Employees who provide only *indirect* support to R&D, such as services provided by personnel in central finance, computing, printing, maintenance, security, or similar departments in your agency that provide services to R&D and non-R&D projects.

Facility Information

We have your facility as: |

Will you be using this questionnaire to report for:

- ☐ This facility only
- ☐ This facility and other facilities
- ☐ A team, lab, or other subgroup within this facility
- ☐ Another facility within your agency
- ☐ Something else

IF ANY OPTION **BESIDES "THIS FACILITY ONLY"** SELECTED, PLEASE **SPECIFY BELOW.**

Who will you be responding for and how does it relate to [FACILITY NAME]? Please give us as much information as possible.

Section 1: R&D Performance at Your Facility

The questions in this section ask about expenditures for research and development (R&D) performed at your facility. Please think about [FACILITY NAME] when answering all questions in this instrument.

Please ensure you have expenditure data to report before proceeding. If you only have obligations or appropriations available, please contact us for further guidance, or identify another staff member who can provide expenditure information, if possible.

1. How much of your facility's total FY 2022 expenditures for research and development (R&D) were for basic research, applied research, and experimental development?

   Include:
   - All of your facility's R&D expenditures, regardless of whether the funding was from direct appropriations, interagency agreements, reimbursable funds, or non-federal sources. Expenditures are often referred to as outlays.
   - R&D performed by your facility's employees.

   *Do **not** include:*
   - Funding for R&D performed outside your facility by contractors or other entities. You will report this in Section 2.

   Remember:
   - For this survey, we are interested in expenditures, not obligations or appropriations.
   - If possible, the type of R&D should be coded at the individual project level by the researcher or project director. Please communicate with other colleagues to gather necessary information. If only estimates are available, please check the box below.
   - R&D type examples can be found on page 7.
   - Report expenditures funded by any agency of the United States government under the **Federal** column. Include federal funds passed through from another organization.
   - Report expenditures funded by state or local governments, businesses, higher education, nonprofit organizations, or foreign sources under the **Nonfederal** column.

Type of R&D	R&D expenditures (Dollars) (1) Federal	(2) Nonfederal	(3) Total
a. Basic research Experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts. Basic research may include activities with broad or general applications in mind, such as the study of how plant genomes change, but should exclude research directed toward a specific application or requirement, such as the optimization of the genome of a specific crop species.	$ .00	$ .00	$ .00
b. Applied research Original investigation undertaken to acquire new knowledge. It is directed primarily toward a specific, practical aim or objective.	$ .00	$ .00	$ .00
c. Experimental development Systematic work, drawing on knowledge gained from research and practical experience, which is directed at producing new products or processes, or improving existing products or processes. Like research, experimental development will result in gaining additional knowledge.	$ .00	$ .00	$ .00
d. Total	$ .00	$ .00	$ .00

☐ **Check here if information entered for this question (1) is estimated.**

Please provide any comments or additional information below. *(Some examples include how you calculated your response, any assumptions you made coming up with your response, or which offices were involved in preparing the response.)*

If applicable, please explain why you cannot answer this question.

R&D Type 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.

2. Of the FY 2022 R&D expenditures you reported in Question 1, how much came from the following sources?

- Report the **original source** of funds, when possible. For example, if you received federal funds from another organization, report that amount under "U.S. federal government."

Source of funds	R&D expenditures (Dollars)
a. U.S. federal government Any agency of the United States government. Include federal funds passed through from another organization.	$ .00
b. State and local government State, county, municipality, or other local government entity in the United States. Do not include state and local universities and colleges or agricultural experiment stations; report these in row e.	$ .00
c. Businesses Domestic or foreign for-profit businesses or industrial firms. Report funds from a company's nonprofit foundation in row d.	$ .00
d. Nonprofit organizations Domestic or foreign nonprofit foundations and organizations, except universities and colleges. Funds from universities and colleges should be reported in row e.	$ .00
e. All other organizations Other sources not reported above, such as funds from foreign governments, and foreign or U.S. universities.	$ .00
f. Total (should match total from Question 1, row d)	$ .00

☐ **Check here if information entered for this question (2) is estimated.**

Please provide any comments or additional information below. (Some examples include how you calculated your response, any assumptions you made coming up with your response, or which offices were involved in preparing the response.)

If applicable, please explain why you cannot answer this question.

If you reported any federally funded expenditures (Question 2, row a), please respond to Question 3. Otherwise please go to Question 4 (page 10).

3. Of the federally funded FY 2022 R&D expenditures you reported in Question 2, which agencies funded this R&D and how much of the reported amount was from each agency?

- Report the agency that was the original source of funds, when possible.
- Use rows i–r to list up to 10 other agencies that funded the largest R&D expenditures. Use row s to report any remaining amount.
- A list of federal departments, agencies, and subagencies is included as a link on the web survey question.

	Funding agency	R&D expenditures (Dollars)
a.	**Department of Agriculture**	$ .00
b.	**Department of Commerce**	$ .00
c.	**Department of Defense**	$ .00
d.	**Department of Energy**	$ .00
e.	**Department of Health and Human Services (including the National Institutes of Health)**	$ .00
f.	**Department of Interior**	$ .00
g.	**Department of Veterans Affairs**	$ .00
h.	**National Aeronautics and Space Administration**	$ .00
i.		$ .00
j.		$ .00
k.		$ .00
l.		$ .00
m.		$ .00
n.		$ .00
o.		$ .00
p.		$ .00
q.		$ .00
r.		$ .00
s.	**Other federal agencies**	$ .00
t.	**Total (should match total from Question 2, row a)**	$ .00

☐ **Check here if information entered for this question (3) is estimated.**

Please provide any comments or additional information below. *(Some examples include how you calculated your response, any assumptions you made coming up with your response, or which offices were involved in preparing the response.)*

If applicable, please explain why you cannot answer this question.

4. Were any of your facility's FY 2022 R&D projects funded through public-private partnerships?
   - Public-private partnerships are those in which the government and private companies share R&D costs.

   ☐ Yes

   ☐ No

5. Of the total FY 2022 R&D expenditures you reported in Question 1, what were your expenditures in each field below?
   - Examples of the fields and disciplines can be found in the supplemental list at the end of the survey.

R&D fields	R&D expenditures (Dollars)
a. Agricultural sciences and natural resources and conservation: e.g., agricultural sciences; animal sciences; applied horticulture; fishing and fisheries science; food science and technology; forestry; natural resources and conservation; plant sciences; soil sciences; or veterinary sciences	$ .00
b. Biological, biomedical, and health sciences: e.g., biochemistry, biophysics, molecular biology; biotechnology; botany; cell biology; epidemiology; genetics; medicine; neuroscience; public health; or zoology	$ .00
c. Computer and information sciences	$ .00
d. Geosciences, atmospheric sciences, and ocean sciences: e.g., atmospheric sciences and meteorology; geological and earth sciences; or ocean and marine sciences	$ .00
e. Mathematics and statistics	$ .00
f. Physical sciences: e.g., astronomy and astrophysics; chemistry; materials science; or physics	$ .00
g. Psychology	$ .00

R&D fields *(continued)*	R&D expenditures (Dollars)
h. Social sciences: e.g., anthropology; archaeology; criminology; economics; geography; linguistics; political science and government; public policy analysis; or sociology, demography, and population studies	$ .00
i. Engineering: e.g., aerospace, aeronautical, and astronautical engineering; bioengineering and biomedical engineering; chemical and petroleum engineering; civil and environmental engineering; electrical and computer engineering; industrial and systems engineering; mechanical engineering; or materials and geological engineering	$ .00
j. Other fields: e.g., business, management, marketing and related; city, urban, community, and regional planning; communication and communications technologies; education research; humanities; law; public administration and social work; or visual and performing arts	$ .00
k. Total (should match total from Question 1, row d)	$ .00

☐ **Check here if information entered for this question (5) is estimated.**

Please provide any comments or additional information below. *(Some examples include how you calculated your response, any assumptions you made coming up with your response, or which offices were involved in preparing the response.)*

If applicable, please explain why you cannot answer this question.

Section 2: R&D Funding to Other Organizations

Questions in this section ask about funding your facility provided to outside organizations for the performance of R&D, such as through contracts, grants, and interagency agreements.

6. Did your facility fund R&D performed by others outside your facility in FY 2022?
   - Do not include expenditures that you reported in Section 1 (Question 1). *See the Definitions section (page 4) for guidance on what is included as funding to other organizations.*

☐ Yes ☐ No → **GO TO SECTION 3: R&D PERSONNEL (page 14)**

If you responded Yes to Question 6, please respond to Question 7 (page 12). Otherwise please go to Question 9 (page 14).

7. In FY 2022, how much funding did your facility provide to others to perform R&D through contracts, grants, and interagency agreements?

Include:

- All expenditures for funding awarded by your facility to external recipients to perform R&D.
- For multi-year awards, include only the amount paid to the external recipient in FY 2022.

Funding types	R&D expenditures (Dollars)
a. Contracts and Other Transactions Agreements Contracts are legal commitments in which a good or service is provided by the external performer that benefits your facility. Your facility specifies the deliverables and gains the rights to results. These should be consistent with OMB Object Class 25.5, research and development contracts. See OMB Circular A-11, Section 83.6, Schedule O. For the purpose of this survey, also include Other Transaction (OT) agreements for R&D.	$ .00
b. Grants and cooperative agreements Grants are legal agreements to provide funding by your facility to support a specific purpose, but not to acquire property and services for your agency. Substantial involvement from your agency is not expected. For the purpose of this survey, also include cooperative agreements (e.g., CRADAs).	$ .00
c. Interagency agreements Interagency agreements are documents, generally between government agencies, departments, or facilities that define cooperative work between them. The agreement defines the parties involved, the work to be performed, and any relevant transfer of technologies and funds, if they exist.	$ .00
d. All other types Other types of funding not reported above, such as intergovernmental personnel act agreements. (Please specify below)	$ .00
e. Total	$ .00

☐ **Check here if information entered for this question (7) is estimated.**

Please provide any comments or additional information below. *(Some examples include how you calculated your response, any assumptions you made coming up with your response, or which offices were involved in preparing the response.)*

If applicable, please explain why you cannot answer this question.

If you responded Yes to Question 6, please respond to Question 8. Otherwise please go to Question 9 (page 14).

8. Of the total funding reported in Question 7, how much funding was provided to the following types of organizations?
   - Report the original funding recipient, when possible. For example, if you provided funding to a state government and they provided that funding to universities, report that amount under "State and local government."

Type of organization	R&D expenditures (Dollars)
a. Other U.S. federal agencies Any agency of the United States government. Include federal funds passed through to another organization.	$ .00
b. State and local government State, county, municipality, or other local government entity in the United States. Do not include state and local universities and colleges or agricultural experiment stations; report these in row e.	$ .00
c. Businesses Domestic or foreign for-profit businesses or industrial firms. Report funding to a company's nonprofit foundation in row d.	$ .00
d. Nonprofit organizations Domestic or foreign nonprofit foundations and organizations, except universities and colleges. Funding to universities and colleges should be reported in row e.	$ .00
e. Higher education Domestic higher education institutions, military service academies, and consortia.	$ .00
f. All other organizations Other sources not reported above, such as funding to foreign governments.	$ .00
g. Total (should match total from Question 7, row e)	$ .00

☐ **Check here if information entered for this question (8) is estimated.**

Please provide any comments or additional information below. *(Some examples include how you calculated your response, any assumptions you made coming up with your response, or which offices were involved in preparing the response.)*

If applicable, please explain why you cannot answer this question.

Section 3: R&D Personnel

Questions in this section ask about personnel who work on R&D. You may have to reach out to your HR department to help get answers.

9. How many of your facility's total R&D personnel (headcount) worked in the job categories listed below in FY 2022?
   - Count each person only once. A description of each R&D function can be found on page 15.
   - Do not include personnel that would be considered indirect research support such as research administration and other personnel not paid for work on specific research projects.

Job category	Researchers	R&D technicians	R&D support staff	Total
a. Federal employees and military personnel Do not include contractors, consultants, or volunteers.				
b. Contractors Personnel hired under a contract to work on R&D for your facility.				
c. All other R&D personnel For example, trainees, volunteers, or fellows who are not federal employees or contractors.				
d. Total				

☐ **Check here if information entered for this question (9) is estimated.**

Please provide any comments or additional information below. *(Some examples include how you calculated your response, any assumptions you made coming up with your response, or which offices were involved in preparing the response.)*

If applicable, please explain why you cannot answer this question.

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

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.

10. How many federal full-time equivalents (FTEs) worked in the functions listed below in FY 2022?

- A description of each R&D function can be found on page 15.
- An individual cannot be more than 1.0 FTE. FTE R&D personnel are calculated as the total working effort spent on R&D during a specific period divided by the total effort representing a full-time schedule within the same period.

Include:

- Federal employees and military personnel only (all personnel counted in Question 9, row a).

Example:
The following examples of FTE calculations assume a 40-hour work week and 12-month year (52 weeks). However, you should use the hours per week and weeks per year that typically represent a full-time employee at your facility.

- 2 R&D support staff who each work on R&D full-time for 32 weeks: 2 * (32/52) = 1.2 FTE
- 1 researcher who works on R&D 20% of the time for 20 weeks, 50% of the time for another 20 weeks, and full-time for 12 weeks: ((20% * 20) + (50% * 20) + 12)/ 52 = 0.5 FTE

R&D function	FTEs (round to 1 decimal place)
a. Researchers	
b. R&D technicians	
c. R&D support staff	
d. Total	

☐ **Check here if information entered for this question (10) is estimated.**

Please provide any comments or additional information below. *(Some examples include how you calculated your response, any assumptions you made coming up with your response, or which offices were involved in preparing the response.)*

If applicable, please explain why you cannot answer this question.

Contact Information and Survey Experience

11. Please provide the contact information for the person responsible for the survey and an alternate contact.

Your Information

Name _____

Job Title _____

Mailing address (line 1) _____

Mailing address (line 2) _____

City, state, and ZIP Code _____

Phone number _____

Email address _____

Alternate Contact Information

Name _____

Job Title _____

Phone number _____

Email address _____

12. What was the total amount of staff time it took your facility to complete this questionnaire?

Include:

- The time you spent reading the instructions, working on the questions, and obtaining information.
- The time spent by all other employees in collecting and providing this information.

_____ Hours _____ Minutes

13. Including yourself, how many people contributed to the completion of this questionnaire? Include all staff who spent time collecting and providing information and/or filling out forms or entering data.

_____ Staff

The following questions ask about your experience with the questionnaire. Your responses will help us improve the survey items and the overall survey experience for future data collection.

14. Which questions, if any, were difficult to answer, and why? How could we make them easier for your facility or agency to answer?

15. What improvements could be made to the help and support features of the survey? If you contacted the help desk at any time, please report on your experiences here. For example, did the help desk solve your issue? Were the people you interacted with helpful and friendly?

Thank you for your participation!

Supplemental List of R&D Fields and Example Disciplines

A. Agricultural sciences and natural resources and conservation

1. Agricultural, animal, plant, veterinary science and related fields

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. Natural resources and conservation

Fishing and fisheries sciences and management
Forestry
Natural resources conservation and research
Natural resources economics
Natural resources management and policy
Renewable natural resources
Wildlife and wildlands science and management

B, Biological, biomedical, and health sciences

1. 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
Genetics
Microbiological sciences and immunology
Molecular medicine
Neurobiology and neuroscience
Pharmacology and toxicology
Physiology, pathology and related sciences
Zoology, animal biology

2. 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
Dentistry
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
Nursing
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 medicine

C. 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
Information sciences, studies
Information technology

D. Geosciences, atmospheric sciences, and ocean sciences

1. Atmospheric science and meteorology

Aeronomy
Atmospheric chemistry and climatology
Atmospheric physics and dynamics
Extraterrestrial atmospheres
Meteorology
Solar
Weather modification

2. Geological and earth sciences

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 technology, surveying

3. Ocean sciences and marine sciences

Biological oceanography
Geological oceanography
Marine biology
Marine oceanography
Marine sciences
Oceanography, chemical and physical

E. Mathematics and statistics

Applied mathematics
Mathematics
Statistics

F. Physical sciences

1. Astronomy and astrophysics

Astronomy
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
Nuclear physics
Optics, optical sciences
Plasma, high-temperature physics

5. Theoretical and mathematical physics

Data processing and data processing technology
Mathematical physics
Theoretical physics

G. Psychology

Animal behavior and ethology
Clinical psychology
Comparative psychology
Counseling psychology
Educational psychology
Experimental psychology
Human development and personality
Industrial and organization psychology
Personality psychology
Social psychology

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
Public finance

3. Political science and government
Comparative government
Legal systems
Political economy
Political science and government
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
Archaeology
Area, ethnic, cultural, gender, and group studies
Cartography
Criminal science
Criminology
Geography
Gerontology, social sciences
International relations and national security studies
Linguistics
Public policy analysis
Regional studies
Urban studies, affairs

I. 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 and petroleum engineering
Biochemical engineering
Chemical and biomolecular engineering
Engineering chemistry
Paper science
Petroleum engineering
Polymer, plastics engineering

4. Civil and environmental engineering
Architectural engineering
Construction engineering
Environmental, environmental health engineering
Geotechnical and geoenvironmental engineering
Sanitary engineering
Structural engineering
Surveying engineering
Transportation and highway engineering
Water resources engineering

5. Electrical and computer engineering
Communications engineering
Computer engineering
Computer hardware engineering
Computer software engineering
Electrical and electronics engineering
Laser and optical engineering
Telecommunications engineering

6. Industrial and systems engineering
Industrial engineering
Manufacturing engineering
Operations research
Systems engineering

7. Mechanical engineering
Electromechanical engineering
Mechatronics, robotics, and automation engineering

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

9. Other engineering
Agricultural engineering
Engineering design
Engineering management, administration
Engineering mechanics, physics, and science
Engineering physics
Engineering science
Forest engineering
Nanotechnology
Naval architecture and marine engineering
Nuclear engineering
Ocean engineering
Power plant engineering

J. Other fields

1. Business, management, marketing, and related
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 research
Education administration and supervision
Education research
Teacher education, specific levels and methods

4. Humanities
English language and literature, letters
Foreign languages and literatures
History, including history and philosophy of science and technology
Humanities, general
Liberal arts and sciences
Philosophy and religious studies
Theology and religious vocations

5. Law
Law
Legal studies

6. Public administration and social services
Public administration
Public affairs
Human services
Social work

7. Visual and performing arts
Drama, theatre arts and stagecraft
Film, video, and photographic arts
Fine and studio arts
Music

8. All other fields
Architecture
City, urban, community and regional planning
Family, consumer sciences and human sciences
Foods, nutrition, and wellness studies
Landscape architecture
Library science
Parks, sports, recreation, leisure and fitness

Also, use the all other fields category for R&D that involves multiple fields if it is impossible to report multidisciplinary or interdisciplinary R&D expenditures in specific fields.