



National Center for Science and
Engineering Statistics

Postdocs at Federally Funded Research and Development Centers: Fall 2021

Data Tables | NSF 22-336 | October 25, 2022

Contents

General Notes 2

Data Tables 3

Technical Notes 11

Notes 15

Acknowledgments and Suggested Citation 16

Contact Us 17

General Notes

These data were compiled from the fall 2021 Survey of Postdocs at Federally Funded Research and Development Centers (FFRDC Postdoc Survey). The survey is intended to identify all FFRDCs that employed postdoctoral researchers (postdocs) as of October 1 of the survey year and to collect aggregate information on the demographic characteristics and fields of research of the postdocs employed at each FFRDC. The FFRDC Postdoc Survey began in 2005 and is administered in odd-numbered years as part of the Survey of Graduate Students and Postdoctorates in Science and Engineering.

The 2021 Master Government List of FFRDCs used for this data collection can be found at <http://www.nsf.gov/statistics/ffrdclist/>. For data on R&D expenditures at FFRDCs, see the R&D Expenditures at FFRDCs report series at <http://www.nsf.gov/statistics/ffrdc/>. For data on federal R&D obligations and funding to FFRDCs, see the Federal Funds for R&D report series at <http://www.nsf.gov/statistics/fedfunds/>.

Data Tables

Table	Title
1	Postdocs at federally funded research and development centers: 2017, 2019 and 2021
2	Citizenship, ethnicity, and race of postdocs at federally funded research and development centers, by sex: 2021
3	Sex, citizenship, ethnicity, and race of postdocs at federally funded research and development centers, by FFRDC type: 2021
4	Source of support and citizenship of postdocs at federally funded research and development centers, by FFRDC type: 2021
5	Field of research of postdocs at federally funded research and development centers, by FFRDC type: 2021
6	Field of research of postdocs at federally funded research and development centers, by citizenship: 2021
7	Sex, citizenship, ethnicity, race, and source of support of postdocs at federally funded research and development centers: 2012–21

TABLE 1

Postdocs at federally funded research and development centers: 2017, 2019 and 2021

(Number)

FFRDCs	2017	2019	2021
All postdocs	2,975	3,335	3,637
University-administered FFRDCs	1,296	1,398	1,405
Ames Laboratory	44	34	42
Argonne National Laboratory	297	310	331
Fermi National Accelerator Laboratory	97	68	70
Green Bank Observatory ^a	na	na	3
Jet Propulsion Laboratory	188	201	195
Lawrence Berkeley National Laboratory	438	509	507
Lincoln Laboratory	4	4	5
NSF's National Optical-Infrared Astronomy Research Laboratory ^b	1	1	4
National Center for Atmospheric Research	60	59	48
National Radio Astronomy Observatory	13	16	9
National Solar Observatory	2	4	3
Princeton Plasma Physics Laboratory	22	36	39
SLAC National Accelerator Laboratory	46	66	45
Thomas Jefferson National Accelerator Facility	84	90	104
Nonprofit-administered FFRDCs	788	912	1,029
Brookhaven National Laboratory	116	159	173
Center for Communications and Computing	0	0	5
National Defense Research Institute	0	1	0
National Renewable Energy Laboratory	102	189	195
Oak Ridge National Laboratory	291	285	314
Pacific Northwest National Laboratory	279	278	342
Industry-administered FFRDCs	891	1,025	1,203
Frederick National Laboratory for Cancer Research	22	15	8
Idaho National Laboratory	34	46	60
Lawrence Livermore National Laboratory	228	253	300
Los Alamos National Laboratory	379	459	456
Sandia National Laboratories	221	251	340
Savannah River National Laboratory	7	1	39

na = not applicable.

FFRDC = federally funded research and development center.

^a The Green Bank Observatory was split out from the National Radio Observatory in 2016. The survey did not record this change until 2021.^b The National Optical Astronomy Observatory, was renamed NSF's National Optical-Infrared Astronomy Research Laboratory in the 2021 survey. The new laboratory also incorporates operations of the International Gemini Observatory and the Vera C. Rubin Observatory.**Source(s):**

National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers.

TABLE 2

Citizenship, ethnicity, and race of postdocs at federally funded research and development centers, by sex: 2021

(Number)

Citizenship, ethnicity, and race	Total	Male	Female
All postdocs	3,637	2,657	980
U.S. citizens and permanent residents ^a	1,779	1,245	534
Hispanic or Latino	120	75	45
Not Hispanic or Latino	1,615	1,139	476
American Indian or Alaska Native	2	1	1
Asian	251	165	86
Black or African American	38	24	14
Native Hawaiian or Other Pacific Islander	1	0	1
White	1,259	916	343
More than one race	64	33	31
Unknown ethnicity or race	44	31	13
Temporary visa holders	1,858	1,412	446

^a Race and ethnicity data are available only for U.S. citizens and permanent residents.

Source(s):

National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers, 2021.

TABLE 3

Sex, citizenship, ethnicity, and race of postdocs at federally funded research and development centers, by FFRDC type: 2021

(Number)

Sex, citizenship, ethnicity, and race	Total	University administered	Nonprofit administered	Industry administered
All postdocs	3,637	1,405	1,029	1,203
Male	2,657	1,022	754	881
Female	980	383	275	322
U.S. citizens and permanent residents ^a	1,779	509	458	812
Hispanic or Latino	120	29	27	64
Not Hispanic or Latino	1,615	443	431	741
American Indian or Alaska Native	2	1	0	1
Asian	251	81	67	103
Black or African American	38	13	7	18
Native Hawaiian or Other Pacific Islander	1	0	0	1
White	1,259	328	343	588
More than one race	64	20	14	30
Unknown ethnicity or race	44	37	0	7
Temporary visa holders	1,858	896	571	391

FFRDC = federally funded research and development center.

^a Race and ethnicity data are available only for U.S. citizens and permanent residents.**Source(s):**

National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers, 2021.

TABLE 4

Source of support and citizenship of postdocs at federally funded research and development centers, by FFRDC type: 2021

(Number)

Source of support and citizenship	Total	University administered	Nonprofit administered	Industry administered
All postdocs	3,637	1,405	1,029	1,203
Federal support	3,091	1,219	768	1,104
U.S. citizens and permanent residents	1,516	444	309	763
Temporary visa holders	1,575	775	459	341
Nonfederal support	411	111	261	39
U.S. citizens and permanent residents	205	28	149	28
Temporary visa holders	206	83	112	11
Unknown support	135	75	0	60

FFRDC = federally funded research and development center.

Source(s):

National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers, 2021.

TABLE 5

Field of research of postdocs at federally funded research and development centers, by FFRDC type: 2021

(Number)

Field of research	Total	University administered	Nonprofit administered	Industry administered
All postdocs	3,637	1,405	1,029	1,203
Science and engineering	3,513	1,376	991	1,146
Science	2,571	1,103	730	738
Agricultural and veterinary sciences	7	3	3	1
Biological and biomedical sciences	258	74	128	56
Chemistry	458	142	172	144
Computer and information sciences	173	73	66	34
Geosciences, atmospheric sciences, and ocean sciences	242	137	43	62
Materials science and chemistry	412	171	144	97
Mathematics and statistics	75	35	9	31
Natural resources and conservation	16	2	7	7
Physics and astronomy	870	453	118	299
Psychology	2	1	1	0
Social sciences	5	1	3	1
Other sciences	53	11	36	6
Engineering	942	273	261	408
Aerospace, aeronautical, and astronautical engineering	21	9	3	9
Biological, biomedical, and biosystems engineering	46	21	1	24
Chemical, petroleum, and related engineering fields	169	52	87	30
Civil, environmental, transportation, and related engineering fields	83	30	28	25
Electrical, electronics, communications, and computer engineering	147	49	31	67
Engineering science, mechanics, and physics	124	22	3	99
Industrial, manufacturing, systems engineering, and operations research	15	3	8	4
Mechanical engineering	173	66	62	45
Metallurgical, mining, materials, and related engineering fields	41	6	6	29
Nuclear engineering	87	8	25	54
Other engineering fields	36	7	7	22
Health	3	0	2	1
Multidisciplinary	92	17	34	41
Non-science or engineering	10	4	2	4
Field of research not known or reported	19	8	0	11

FFRDC = federally funded research and development center.

Source(s):

National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers, 2021.

TABLE 6

Field of research of postdocs at federally funded research and development centers, by citizenship: 2021

(Number)

Field of research	Total	U.S. citizens and permanent residents	Temporary visa holders
All postdocs	3,637	1,779	1,858
Science and engineering	3,513	1,700	1,813
Science	2,571	1,238	1,333
Agricultural and veterinary sciences	7	4	3
Biological and biomedical sciences	258	155	103
Chemistry	458	265	193
Computer and information sciences	173	62	111
Geosciences, atmospheric sciences, and ocean sciences	242	108	134
Materials science and chemistry	412	171	241
Mathematics and statistics	75	32	43
Natural resources and conservation	16	10	6
Physics and astronomy	870	399	471
Psychology	2	2	0
Social sciences	5	3	2
Other sciences	53	27	26
Engineering	942	462	480
Aerospace, aeronautical, and astronautical engineering	21	7	14
Biological, biomedical, and biosystems engineering	46	27	19
Chemical, petroleum, and related engineering fields	169	75	94
Civil, environmental, transportation, and related engineering fields	83	41	42
Electrical, electronics, communications, and computer engineering	147	64	83
Engineering science, mechanics, and physics	124	86	38
Industrial, manufacturing, systems engineering, and operations research	15	3	12
Mechanical engineering	173	59	114
Metallurgical, mining, materials, and related engineering fields	41	26	15
Nuclear engineering	87	53	34
Other engineering fields	36	21	15
Health	3	3	0
Multidisciplinary	92	58	34
Non-science or engineering	10	6	4
Field of research not known or reported	19	12	7

Source(s):

National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers, 2021.

TABLE 7

Sex, citizenship, ethnicity, race, and source of support of postdocs at federally funded research and development centers: 2012–21

(Number)

Characteristic	2012	2013	2015	2017	2019	2021
FFRDCs with postdocs	21	21	24	23	24	25
All postdocs	2,793	2,613	2,696	2,975	3,335	3,637
Male	2,115	2,020	2,048	2,259	2,476	2,657
Female	678	593	648	716	859	980
U.S. citizens and permanent residents ^a	1,156	1,150	1,246	1,341	1,429	1,779
Hispanic or Latino	54	52	55	67	76	120
Not Hispanic or Latino	1,045	1,065	1,140	1,217	1,311	1,615
American Indian or Alaska Native	4	3	5	4	0	2
Asian	137	171	181	170	193	251
Black or African American	14	14	19	27	38	38
Native Hawaiian or Other Pacific Islander	3	2	0	0	2	1
White	853	861	908	991	1,043	1,259
More than one race	34	14	27	25	35	64
Unknown ethnicity or race	57	33	51	57	42	44
Temporary visa holders	1,637	1,463	1,450	1,634	1,906	1,858
Source of support						
Federal support	2,707	2,531	2,543	2,544	2,956	3,091
Nonfederal support	86	82	150	116	379	411
Unknown support source	0	0	3	315	0	135

FFRDC = federally funded research and development center.

^a Race and ethnicity data are available only for U.S. citizens and permanent residents.**Note(s):**

The survey was not conducted in 2014, 2016, 2018, or 2020. Exercise caution in using trend data because the changes in how FFRDCs define their postdocs, maintain their administrative data, and report unknown responses affect data comparability trends. See <https://www.nsf.gov/statistics/srvyffrdcpd/> for more details.

Source(s):

National Center for Science and Engineering Statistics, Survey of Postdocs at Federally Funded Research and Development Centers.

Technical Notes

Survey Overview (2021 Survey Cycle)

Purpose. The Survey of Postdocs at Federally Funded Research and Development Centers (FFRDC Postdoc Survey) is intended to identify all FFRDCs that employed postdoctoral researchers (postdocs) as of 1 October of the survey year and to collect aggregate information on the demographic characteristics and fields of research of the postdocs employed at each FFRDC. The survey is conducted as part of the Survey of Graduate Students and Postdoctorates in Science and Engineering, which is sponsored by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF) and by the National Institutes of Health.

Data collection authority. The information collected in the FFRDC Postdoc Survey is solicited under the authority of the National Science Foundation Act of 1950, as amended, and the America COMPETES Reauthorization Act of 2010. The Office of Management and Budget (OMB) control number is 3145-0062 and expires on 31 August 2023.

Survey contractor. RTI International.

Survey sponsors. The FFRDC Postdoc Survey is conducted as part of the Survey of Graduate Students and Postdoctorates in Science and Engineering, which is sponsored by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation and by the National Institutes of Health. The Department of Energy provided funding until 2010.

Key Survey Information

Frequency. Periodic.

Initial survey year. 2005.

Reference period. 1 October 2021.

Response unit. Establishment.

Sample or census. Census.

Population size. 43 FFRDCs.

Sample size. Not applicable.

Survey Design

Target population. The survey target population includes all FFRDCs that employed postdocs as of 1 October 2021.

Sampling frame. The survey is a census of all FFRDCs in the Master Government List of FFRDCs in the United States as of March 2021.¹ The list is maintained by NSF (<http://www.nsf.gov/statistics/ffrdclist/>). NCSES maintains the master list by querying all federal agencies annually to determine changes, additions, or deletions to the list. FFRDCs are engaged in basic research, applied research, development, or management of R&D activities, either on direct request of the government or under a broad charter from the government—in both cases, under the monitorship of the government.

Sample design. Not applicable.

Data Collection and Processing Methods

Data collection. On 3 February 2022, before starting data collection, prior survey coordinators were contacted via e-mail to confirm whether they were still the most appropriate contact. Additional follow-up contacts through e-mails and telephone calls were made to staff at those FFRDCs that did not immediately confirm the contact person. These efforts resulted in identifying a contact person for all returning FFRDCs. On 14 February 2022, FFRDC directors were sent an e-mail inviting their FFRDC to participate in the 2021 survey. On 15 February 2022, the FFRDC coordinators received a survey launch e-mail that provided them with their Web access information and indicated the due date of 25 March 2022. Two FFRDCs requested additional time to complete the survey, which ultimately closed on 8 April 2022. Two of the FFRDCs that have only ever reported zero postdocs did not respond in 2021. No evidence of postdocs was apparent through online searches of either of the nonresponding FFRDCs' websites.

Mode. Self-administered online questionnaire (Web).

Response rates. All but 2 of the 43 FFRDCs responded to the survey, including all of the FFRDCs that employed postdocs in 2019. Thus, the overall FFRDC response rate was 95.3%, and the response rate for FFRDCs that employed postdocs was 100%. The response rate calculations adhere to American Association for Public Opinion Research standards for computing response rates.²

Data editing. All data submitted by the FFRDCs were reviewed to ensure that all data fields were completed and that data were internally consistent. Any FFRDC with cell counts that differ by more than 20% from its corresponding prior-year data was flagged for edit verification. In cases where survey staff determined that confirmation was needed, FFRDC respondents were contacted by e-mail and asked to correct and resubmit the survey data.

Imputation. No imputation was applied to data collected in the 2021 survey cycle.

Weighting. Not applicable.

Variance estimation. Not applicable.

Survey Quality Measures

Sampling error. Not applicable.

Coverage error. There is no coverage error for this survey other than that, if any, from the Master Government List of FFRDCs maintained by NSF.

Nonresponse error. The survey typically has high response rates. In 2021 95.3%, FFRDCs provided complete or partial data.

Measurement error. The most likely source of measurement error is from respondents' misreporting of information. To minimize reporting errors, substantial changes in counts and inconsistent data survey responses are subject to follow-up contacts to verify changes and correct anomalies in the data. The survey Web instrument was also designed to allow respondents to indicate that they have postdocs but do not have the information about them for a particular grid, which allows missing information to be distinguished from the reporting of zero counts.

Data Comparability (Changes)

Changes in survey coverage and population. In 2021, the FFRDC Postdoc Survey started recording the following changes for the first time. The survey added the Green Bank Observatory, which was split out from the National Radio Astronomy Observatory in 2016; both retained FFRDC status. In October 2019, the National Optical Astronomy Observatory was renamed NSF's National Optical-Infrared Astronomy Research Laboratory. The new laboratory also incorporates operations of the International Gemini Observatory and the Vera C. Rubin Observatory. All other changes to the master list did not impact FFRDCs reporting postdocs.

In 2012, the Frederick National Laboratory for Cancer Research (FNLCR) was reorganized and renamed from the National Cancer Institute at Frederick and revised its postdoc reporting to include only FFRDC contract employees. Consequently, the total number of postdocs reported by the FNLCR dropped from 286 in 2010 to 25 in 2012. All comparisons of FFRDC postdoc data spanning this period need to account for these differences.

Changes in questionnaire. None.

Changes in reporting procedures or classification. Not applicable.

Definitions

Ethnicity. OMB provides guidance to collect Hispanic ethnicity separately from race. In this survey, Hispanic ethnicity refers to whether an individual is of Hispanic or Latino descent.

Federal financial support. Postdoctoral support provided by a federal agency such as the Department of Defense, Department of Energy, National Institutes of Health, or National Science Foundation.

Field of research. The area of which a postdoc's research was focused. It may or may not be the field in which a postdoc received his or her degree.

Hispanic or Latino ethnicity. Individuals of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

Largest source of support. The source of funds that provides the largest amount (highest percentage) of financial support for postdocs.

Nonfederal financial support. Support from state and local government; support from institutions, such as stipends; support from foreign sources, such as foreign governments, foreign firms, and agencies of the United Nations; and support from other U.S. sources, such as support from nonprofit institutions, private industry, and all other nonfederal U.S. sources.

Postdoctoral researchers (postdocs). The definition of a postdoc varies by institution. Respondents were instructed to use their institution's definition of a postdoc. NCSSES defines a postdoc as meeting both of the following qualifications:

- Holds a recent doctoral degree, generally awarded within the past 5 years, such as PhD or equivalent (e.g., ScD or DEng), a first professional degree in a medical or related field (MD, DDS, DO, DVM), or a foreign degree equivalent to a U.S. doctoral degree.
- Has a limited-term appointment, generally no more than 5–7 years, primarily for training in research or scholarship and working under the supervision of a senior scholar in a unit affiliated with the institution.

Temporary visa holders. Individuals in the United States on temporary U.S. resident visas.

U.S. citizens and permanent residents. U.S. citizens, including those from Puerto Rico and the U.S. territories, and permanent residents holding permanent U.S. resident visas (Green Cards).

U.S. territories. American Samoa, Guam, the Federated States of Micronesia, the Northern Mariana Islands, and the U.S. Virgin Islands.

Notes

1 The 2021 version of FFRDC list used for this data collection can be found at <https://www.nsf.gov/statistics/ffrdclist/archive/ffrdc-2021.xlsx>.

2 See response rate 1 calculation in American Association for Political Opinion Research (AAPOR). 2016. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*. 9th ed., p. 61. Deerfield, IL: AAPOR.

Acknowledgments and Suggested Citation

Acknowledgments

Michael Yamaner of the National Center for Science and Engineering Statistics (NCSES) developed and coordinated this report under the guidance of Gary Anderson, acting NCSES Program Director, and leadership of Emilda B. Rivers, NCSES Director; Vipin Arora, NCSES Deputy Director; and John Finamore, NCSES Chief Statistician. Jock Black (NCSES) reviewed the report.

The 2021 Survey of Postdocs at Federally Funded Research and Development Centers was conducted as part of the Survey of Graduate Students and Postdoctorates in Science and Engineering with funds from NSF and the National Institutes of Health.

Under contract to NCSES, RTI International conducted the survey and prepared the tables. RTI staff members who made significant contributions include Caren Arbeit, Jack Stoetzel, and Jon Gordon. Publication processing support was provided by Devi Mishra, Christine Hamel, and Tanya Gore (NCSES).

Suggested Citation

National Center for Science and Engineering Statistics (NCSES). 2022. *Postdocs at Federally Funded Research and Development Centers: Fall 2021*. NSF 22-336. Alexandria, VA: National Science Foundation. Available at <https://ncses.nsf.gov/pubs/nsf22336/>.

Contact Us

Report Author

Michael Yamaner
Survey Manager
NCSES
Tel: (703) 292-7815
E-mail: myamaner@nsf.gov

NCSES

National Center for Science and Engineering Statistics
Directorate for Social, Behavioral and Economic Sciences
National Science Foundation
2415 Eisenhower Avenue, Suite W14200
Alexandria, VA 22314
Tel: (703) 292-8780
FIRS: (800) 877-8339
TDD: (800) 281-8749
E-mail: ncsesweb@nsf.gov