National Center for Science and Engineering Statistics

Early Career Doctorates: 2017

Data Tables | NSF 21-323 | May 11, 2021

Contents

General Notes

The Early Career Doctorates Survey (ECDS) gathers in-depth information about individuals who earned their first doctoral degree (PhD, MD, or equivalent) in the past 10 years and work in U.S. academic institutions and federally funded research and development centers. Unique in scope, the ECDS includes professional and research doctorate holders from all fields trained in the United States and abroad. Sponsored by the National Center for Science and Engineering Statistics within the National Science Foundation and by the National Institutes of Health, the ECDS provides new data on the work experiences of individuals in the first years following the completion of their doctoral studies. The survey collects details about demographics; professional activities and achievements; work-life balance; mentoring, training, and research opportunities; and career plans and paths. Inclusive of individuals with doctoral degrees or equivalents earned in any field and any country, the ECDS covers all types of positions (e.g., faculty and other instructional staff; postdoctoral researchers and other nonfaculty researchers; and administrative and other staff).

Data Tables

Demographic and Employment Characteristics

Work Experience and Training

Scholarly Activities

Work-Life Balance

Compensation and Scholarly Productivity

Satisfaction with Position

Employment History and Career Aspirations

TABLE 1-1

Employment setting of early career doctorates, by position type, doctoral degree characteristics, and demographic characteristics: 2017

(Percent distribution)

Selected characteristic	All employment settings	All academic institutions[a]				FFRDC
		All academic institutions	Very high research activity university	High research activity university	Other college or university	
Number of early career doctorates	186,700	178,900	83,000	27,500	68,500	7,800
Percentage of early career doctorates	100.0	100.0	100.0	100.0	100.0	100.0
Position type[b]						
Faculty	67.3	69.9	51.9	81.2	87.3	6.3
Tenured faculty	14.6	15.2	8.5	16.3	22.9	1.2
Tenure-track faculty	31.3	32.6	25.5	38.5	38.9	1.8
Non-tenure track faculty with rank	7.0	7.1	6.4	9.5	7.0	2.9
Other faculty, no rank or tenure	14.4	15.0	11.4	16.9	18.5	D
Postdoctoral scholar	19.5	18.8	34.8	8.6	3.4	36.9
Research scientist or nonfaculty researcher	5.8	3.8	6.8	2.0	0.9	52.1
Other positions	7.4	7.5	6.5	8.2	8.4	4.8
Doctoral degree type						
Professional degree or doctoral equivalent[c]	8.4	8.7	4.7	9.1	13.4	D
Research degree	91.6	91.3	95.3	90.9	86.6	99.4
Years since doctoral degree						
1 year or less	19.8	19.6	22.6	17.6	16.8	23.8
2–5 years	44.3	44.4	45.1	44.1	43.8	42.0
6–10 years	35.9	36.0	32.3	38.2	39.5	34.2
Origin of doctoral degree						
U.S. degree	86.6	87.1	79.2	92.2	94.7	75.7
Non-U.S. degree	13.4	12.9	20.8	7.8	5.3	24.3
Field of doctoral degree						
Science and engineering	60.3	58.7	74.0	50.7	43.3	98.3
Biological, agricultural, and environmental life sciences	15.5	15.9	23.1	10.9	9.1	5.8
Agricultural and environmental life sciences	2.1	2.1	3.1	2.3	0.9	1.3
Biological and biomedical sciences	13.4	13.7	20.0	8.5	8.2	4.5
Engineering	9.2	8.4	11.8	8.1	4.3	29.2
Mathematics and computer sciences	6.5	6.3	7.0	5.9	5.5	11.3
Computer and information sciences	3.1	2.9	3.3	3.1	2.3	9.0
Mathematics and statistics	3.3	3.4	3.7	2.8	3.3	2.3
Multidisciplinary fields and science and engineering related fields	1.4	1.4	1.8	1.0	1.0	2.1
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	11.1	9.6	14.6	6.4	4.7	44.8
Psychology and social sciences	16.7	17.2	15.7	18.4	18.5	5.1
Psychology	4.7	4.8	4.5	5.8	4.8	S
Social sciences	12.0	12.4	11.1	12.6	13.8	4.1
Health	7.2	7.5	5.6	7.7	9.7	D
Non-science and engineering	32.5	33.9	20.5	41.6	47.0	1.4
Education	11.3	11.8	6.1	14.7	17.5	D

TABLE 1-1

Employment setting of early career doctorates, by position type, doctoral degree characteristics, and demographic characteristics: 2017

(Percent distribution)

Selected characteristic	All employment settings	All academic institutions[a]				FFRDC
		All academic institutions	Very high research activity university	High research activity university	Other college or university	
Humanities	8.4	8.8	6.5	11.3	10.6	D
Other non-science and engineering	12.8	13.3	7.9	15.6	19.0	1.3
Position tenure						
1 year or less	13.8	14.0	11.7	15.1	16.4	7.6
More than 1 year but less than 5 years	58.2	57.6	67.3	53.8	47.4	70.7
5 years or more	28.1	28.3	21.0	31.0	36.2	21.7
Sex						
Female	47.9	49.0	44.1	49.6	54.8	21.9
Male	52.1	51.0	55.9	50.4	45.2	78.1
Citizenship and sex						
U.S. citizen or permanent resident	83.6	84.2	75.6	89.0	92.7	70.3
Female	42.8	43.9	36.6	46.4	51.8	16.1
Male	40.8	40.3	39.0	42.6	40.9	54.2
Temporary visa holder	16.4	15.8	24.4	11.0	7.3	29.7
Female	5.1	5.1	7.5	3.2	3.0	5.8
Male	11.3	10.7	17.0	7.8	4.3	23.9
Ethnicity and race						
Hispanic or Latino	7.3	7.4	7.8	8.4	6.5	4.1
Not Hispanic or Latino						
Asian	20.1	19.6	25.6	16.5	13.6	31.6
Black or African American	5.4	5.6	4.1	3.7	8.2	0.8
White	64.7	64.8	60.0	68.9	69.1	61.5
Other race and ethnicity	2.5	2.5	2.5	2.4	2.6	2.0
Age quartile						
32 years and under	20.6	20.1	28.5	15.5	11.6	32.3
33–35 year	27.4	27.0	30.6	25.6	23.1	36.4
36–40 years	22.4	22.6	21.8	25.0	22.4	19.7
41 years or older	29.6	30.4	19.0	33.9	42.8	11.6
Disability status						
With disability	27.7	28.0	25.3	26.2	32.0	20.2
Without disability	72.3	72.0	74.7	73.8	68.0	79.8

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[b] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 1-2

Position type of early career doctorates, by doctoral degree characteristics and demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Total	Faculty					Postdoctoral scholar[b]	Other position		
		Total	Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[a]		Total	Research scientist or nonfaculty researcher	All other positions[c]
Number of early career doctorates	186,700	125,600	27,300	58,500	13,000	26,800	36,400	24,700	10,900	13,800
Percentage of early career doctorates	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Doctoral degree type										
Professional degree or doctoral equivalent[d]	8.4	8.3	3.6	3.4	22.2	16.9	1.9	18.6	1.4	32.2
Research degree	91.6	91.7	96.4	96.6	77.8	83.1	98.1	81.4	98.6	67.8
Years since doctoral degree										
1 year or less	19.8	14.0	1.5	16.5	14.4	20.8	43.4	14.5	11.2	17.1
2–5 years	44.3	43.4	17.0	54.5	45.9	44.7	48.6	42.9	44.1	42.0
6–10 years	35.9	42.7	81.5	28.9	39.7	34.5	8.0	42.6	44.7	41.0
Origin of doctoral degree										
U.S. degree	86.6	93.5	95.7	92.7	89.9	94.5	62.1	88.3	77.5	96.9
Non-U.S. degree	13.4	6.5	4.3	7.3	10.1	5.5	37.9	11.7	22.5	3.1
Field of doctoral degree										
Science and engineering	60.3	51.5	49.4	56.1	49.5	44.6	92.6	57.6	89.8	32.1
Biological, agricultural, and environmental life sciences	15.5	9.1	5.4	10.5	13.4	7.9	39.2	12.7	19.8	7.0
Agricultural and environmental life sciences	2.1	1.5	1.5	1.7	1.5	S	4.3	1.9	2.5	1.5
Biological and biomedical sciences	13.4	7.6	3.9	8.8	11.9	6.8	34.9	10.7	17.3	5.5
Engineering	9.2	7.3	7.3	8.8	6.0	4.5	13.8	12.5	22.6	4.5
Mathematics and computer sciences	6.5	6.7	7.6	7.3	6.0	4.7	6.5	5.5	8.9	S
Computer and information sciences	3.1	3.2	3.5	3.9	1.7	2.4	2.6	3.4	6.3	S
Mathematics and statistics	3.3	3.4	4.1	3.4	4.2	2.3	3.9	2.1	2.7	S
Multidisciplinary fields and science and engineering related fields	1.4	1.2	1.5	1.1	S	1.3	1.8	1.9	1.1	2.4
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	11.1	6.7	3.9	7.3	8.3	7.3	24.9	13.0	25.9	2.8
Psychology and social sciences	16.7	20.6	23.7	21.1	14.8	19.0	6.5	12.0	11.4	12.5
Psychology	4.7	5.1	5.4	5.2	3.2	5.6	2.8	5.2	4.0	6.2
Social sciences	12.0	15.4	18.3	15.9	11.6	13.4	3.7	6.8	7.4	6.3
Health	7.2	8.1	5.3	6.7	22.7	7.1	3.7	7.4	1.6	12.1

TABLE 1-2

Position type of early career doctorates, by doctoral degree characteristics and demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Total	Faculty					Postdoctoral scholar[b]	Other position		
		Total	Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[a]		Total	Research scientist or nonfaculty researcher	All other positions[c]
Non-science and engineering	32.5	40.4	45.3	37.3	27.8	48.3	3.7	35.0	8.6	55.9
Education	11.3	11.8	10.4	8.6	14.2	19.2	1.1	23.5	2.7	40.1
Humanities	8.4	11.0	12.7	9.5	S	15.2	1.4	5.9	2.4	8.8
Other non-science and engineering	12.8	17.6	22.3	19.1	8.4	14.0	1.2	5.5	3.6	7.0
Position tenure										
1 year or less	13.8	15.0	3.1	15.9	12.2	26.6	13.4	8.0	8.2	7.8
2–5 years	58.2	50.6	13.3	67.2	54.7	50.3	80.9	63.3	68.8	58.9
6–10 years	28.1	34.4	83.7	16.9	33.1	23.1	5.7	28.7	23.0	33.3
Sex										
Female	47.9	51.2	46.4	48.6	60.8	57.0	36.3	48.4	33.2	60.4
Male	52.1	48.8	53.6	51.4	39.2	43.0	63.7	51.6	66.8	39.6
Citizenship and sex										
U.S. citizen or permanent resident	83.6	92.4	98.0	88.9	92.6	94.2	48.8	90.4	82.6	96.6
Female	42.8	48.3	45.7	44.4	58.6	54.6	22.0	45.1	27.0	59.6
Male	40.8	44.1	52.3	44.5	33.9	39.6	26.8	45.3	55.6	37.1
Temporary visa holder	16.4	7.6	2.0	11.1	7.4	5.8	51.2	9.6	17.4	3.4
Female	5.1	2.8	0.7	4.2	2.1	2.4	14.3	3.2	6.3	0.8
Male	11.3	4.8	1.3	6.9	5.3	3.4	36.9	6.4	11.2	2.6
Ethnicity and race										
Hispanic or Latino	7.3	7.4	6.4	8.1	7.0	7.2	8.5	4.5	3.0	5.7
Not Hispanic or Latino										
Asian	20.1	15.4	15.1	18.7	14.9	9.0	38.8	16.4	28.2	7.0
Black or African American	5.4	6.0	4.5	5.5	7.4	7.9	2.2	7.1	2.5	10.8
White	64.7	68.4	72.1	64.8	69.4	72.2	49.2	68.7	63.8	72.5
Other race and ethnicity	2.5	2.7	1.9	2.9	1.3	3.7	1.3	3.3	2.5	3.9
Age quartile										
32 years and under	20.6	12.2	1.0	18.2	12.5	10.3	54.0	14.0	19.9	9.3
33–35 year	27.4	26.9	17.7	35.2	22.8	20.0	30.8	24.7	33.1	17.9
36–40 years	22.4	25.8	33.2	25.7	21.2	20.5	10.2	23.6	26.8	21.1
41 years or older	29.6	35.2	48.2	20.9	43.5	49.1	5.0	37.8	20.2	51.7
Disability status										
With disability	27.7	29.4	32.8	26.8	25.0	33.6	22.5	26.9	19.5	32.8
Without disability	72.3	70.6	67.2	73.2	75.0	66.4	77.5	73.1	80.5	67.2

S = suppressed for reliability; coefficient of variation exceeds publication standards.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts.

[b] Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research.

[c] All other positions are diverse but are typically university administrators and staff.

[d] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 2-1

Sex, ethnicity, and race of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Sex		Ethnicity and race				
					Not Hispanic or Latino			
		Female	Male	Hispanic or Latino	Asian	Black or African American	White	Other race and ethnicity
All early career doctorates	186,700	47.9	52.1	7.3	20.1	5.4	64.7	2.5
Position type[a]								
Faculty	125,600	51.2	48.8	7.4	15.4	6.0	68.4	2.7
Tenured faculty	27,300	46.4	53.6	6.4	15.1	4.5	72.1	1.9
Tenure-track faculty	58,500	48.6	51.4	8.1	18.7	5.5	64.8	2.9
Non-tenure track faculty with rank	13,000	60.8	39.2	7.0	14.9	7.4	69.4	1.3
Other faculty, no rank or tenure	26,800	57.0	43.0	7.2	9.0	7.9	72.2	3.7
Postdoctoral scholar	36,400	36.3	63.7	8.5	38.8	2.2	49.2	1.3
Research scientist or nonfaculty researcher	10,900	33.2	66.8	3.0	28.2	2.5	63.8	2.5
Other positions	13,800	60.4	39.6	5.7	7.0	10.8	72.5	3.9
Employment setting								
Academic institution[b]	178,900	49.0	51.0	7.4	19.6	5.6	64.8	2.5
Very high research activity university	83,000	44.1	55.9	7.8	25.6	4.1	60.0	2.5
High research activity university	27,500	49.6	50.4	8.4	16.5	3.7	68.9	2.4
Other college or university	68,500	54.8	45.2	6.5	13.6	8.2	69.1	2.6
FFRDC	7,800	21.9	78.1	4.1	31.6	0.8	61.5	2.0
Doctoral degree type								
Professional degree or doctoral equivalent[c]	15,700	70.2	29.8	5.8	8.0	8.2	76.6	1.4
Research degree	171,100	45.9	54.1	7.4	21.2	5.2	63.6	2.6
Origin of doctoral degree								
U.S. degree	161,800	49.9	50.1	6.7	17.6	6.1	66.9	2.7
Non-U.S. degree	24,900	35.1	64.9	10.8	36.5	1.2	50.5	1.0
Years since doctoral degree								
1 year or less	36,900	45.4	54.6	7.6	23.4	5.1	60.5	3.3
2–5 years	82,800	48.4	51.6	7.1	21.1	5.5	63.9	2.4
6–10 years	67,000	48.7	51.3	7.2	17.1	5.5	68.0	2.2
Field of doctoral degree								
Science and engineering	112,600	40.0	60.0	7.5	25.0	3.8	61.6	2.1
Biological, agricultural, and environmental life sciences	28,900	45.3	54.7	9.6	27.8	2.0	58.2	2.4
Agricultural and environmental life sciences	3,900	43.9	56.1	8.5	25.6	2.5	60.3	3.0
Biological and biomedical sciences	24,900	45.5	54.5	9.7	28.2	2.0	57.8	2.3
Engineering	17,200	22.9	77.1	5.1	37.8	4.0	51.3	1.9
Mathematics and computer sciences	12,100	28.1	71.9	5.9	31.8	1.8	59.3	1.2
Computer and information sciences	5,900	22.3	77.7	4.8	39.7	2.8	51.8	D
Mathematics and statistics	6,200	33.5	66.5	6.9	24.3	D	66.4	S
Multidisciplinary fields and science and engineering related fields	2,600	48.0	52.0	4.7	17.8	S	63.6	2.9

TABLE 2-1

Sex, ethnicity, and race of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Sex		Ethnicity and race				
					Not Hispanic or Latino			
		Female	Male	Hispanic or Latino	Asian	Black or African American	White	Other race and ethnicity
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	29.7	70.3	5.4	28.5	0.7	63.8	1.7
Psychology and social sciences	31,200	55.1	44.9	9.1	11.1	7.5	69.8	2.5
Psychology	8,700	68.5	31.5	7.8	9.6	7.2	72.0	3.3
Social sciences	22,400	49.9	50.1	9.6	11.6	7.6	69.0	2.2
Health	13,400	73.4	26.6	5.2	11.7	7.3	73.6	2.3
Non-science and engineering	60,700	57.0	43.0	7.3	12.9	8.0	68.5	3.3
Education	21,100	67.8	32.2	7.4	8.4	9.8	71.5	2.9
Humanities	15,700	51.6	48.4	9.8	5.5	5.1	75.0	4.6
Other non-science and engineering	23,900	51.1	48.9	5.6	21.7	8.4	61.5	2.8

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 2-2

Years since doctoral degree of early career doctorates, by position type, employment setting, and field of doctoral degree: 2017

(Percent)

Selected characteristics	Number of early career doctorates	Years since doctoral degree awarded		
		1 year or less	2–5 years	6–10 years
All early career doctorates	186,700	19.8	44.3	35.9
Position type[a]				
Faculty	125,600	14.0	43.4	42.7
Tenured faculty	27,300	1.5	17.0	81.5
Tenure-track faculty	58,500	16.5	54.5	28.9
Non-tenure track faculty with rank	13,000	14.4	45.9	39.7
Other faculty, no rank or tenure	26,800	20.8	44.7	34.5
Postdoctoral scholar	36,400	43.4	48.6	8.0
Research scientist or nonfaculty researcher	10,900	11.2	44.1	44.7
Other positions	13,800	17.1	42.0	41.0
Employment setting				
Academic institution[b]	178,900	19.6	44.4	36.0
Very high research activity university	83,000	22.6	45.1	32.3
High research activity university	27,500	17.6	44.1	38.2
Other college or university	68,500	16.8	43.8	39.5
FFRDC	7,800	23.8	42.0	34.2
Field of doctoral degree				
Science and engineering	112,600	20.7	44.0	35.3
Biological, agricultural, and environmental life sciences	28,900	18.7	46.7	34.5
Agricultural and environmental life sciences	3,900	18.5	48.8	32.7
Biological and biomedical sciences	24,900	18.8	46.4	34.8
Engineering	17,200	21.9	44.8	33.2
Mathematics and computer sciences	12,100	24.5	39.9	35.6
Computer and information sciences	5,900	20.7	45.4	33.9
Mathematics and statistics	6,200	28.1	34.7	37.2
Multidisciplinary fields and science and engineering related fields	2,600	15.8	43.2	41.1
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	25.3	41.8	33.0
Psychology and social sciences	31,200	17.7	44.3	37.9
Psychology	8,700	16.8	45.2	38.0
Social sciences	22,400	18.1	44.0	37.9
Health	13,400	19.2	43.7	37.0
Non-science and engineering	60,700	18.2	45.0	36.8
Education	21,100	21.3	46.3	32.4
Humanities	15,700	15.0	42.1	42.9
Other non-science and engineering	23,900	17.6	45.7	36.7

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 2-3

Origin of doctoral degree and citizenship of early career doctorates, by position type, employment setting, and field of doctoral degree: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Origin of doctoral degree		Citizenship	
		U.S. degree	Non-U.S. degree	U.S. citizen or permanent resident	Temporary visa holder
All early career doctorates	186,700	86.6	13.4	83.6	16.4
Position type[a]					
Faculty	125,600	93.5	6.5	92.4	7.6
Tenured faculty	27,300	95.7	4.3	98.0	2.0
Tenure-track faculty	58,500	92.7	7.3	88.9	11.1
Non-tenure track faculty with rank	13,000	89.9	10.1	92.6	7.4
Other faculty, no rank or tenure	26,800	94.5	5.5	94.2	5.8
Postdoctoral scholar	36,400	62.1	37.9	48.8	51.2
Research scientist or nonfaculty researcher	10,900	77.5	22.5	82.6	17.4
Other positions	13,800	96.9	3.1	96.6	3.4
Employment setting					
Academic institution[b]	178,900	87.1	12.9	84.2	15.8
Very high research activity university	83,000	79.2	20.8	75.6	24.4
High research activity university	27,500	92.2	7.8	89.0	11.0
Other college or university	68,500	94.7	5.3	92.7	7.3
FFRDC	7,800	75.7	24.3	70.3	29.7
Doctoral degree type					
Professional degree or doctoral equivalent[c]	15,700	97.2	2.8	96.8	3.2
Research degree	171,100	85.7	14.3	82.4	17.6
Years since doctoral degree					
1 year or less	36,900	84.6	15.4	68.6	31.4
2–5 years	82,800	85.5	14.5	80.9	19.1
6–10 years	67,000	89.1	10.9	95.2	4.8
Field of doctoral degree					
Science and engineering	112,600	80.6	19.4	77.0	23.0
Biological, agricultural, and environmental life sciences	28,900	70.9	29.1	70.2	29.8
Agricultural and environmental life sciences	3,900	78.0	22.0	71.0	29.0
Biological and biomedical sciences	24,900	69.7	30.3	70.0	30.0
Engineering	17,200	84.1	15.9	73.9	26.1
Mathematics and computer sciences	12,100	83.5	16.5	73.9	26.1
Computer and information sciences	5,900	80.8	19.2	71.9	28.1
Mathematics and statistics	6,200	86.1	13.9	75.7	24.3
Multidisciplinary fields and science and engineering related fields	2,600	77.4	22.6	87.8	12.2
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	71.8	28.2	67.8	32.2
Psychology and social sciences	31,200	92.7	7.3	91.4	8.6
Psychology	8,700	94.4	5.6	96.2	3.8
Social sciences	22,400	92.1	7.9	89.6	10.4
Health	13,400	93.1	6.9	92.3	7.7
Non-science and engineering	60,700	96.4	3.6	94.0	6.0
Education	21,100	98.6	1.4	97.0	3.0

TABLE 2-3

Origin of doctoral degree and citizenship of early career doctorates, by position type, employment setting, and field of doctoral degree: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Origin of doctoral degree		Citizenship	
		U.S. degree	Non-U.S. degree	U.S. citizen or permanent resident	Temporary visa holder
Humanities	15,700	96.0	4.0	95.7	4.3
Other non-science and engineering	23,900	94.7	5.3	90.1	9.9

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 2-4

Educational background of early career doctorates, by position type, employment setting, and field of doctoral degree: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Doctoral institution type					Doctoral degree type	
		U.S. institution				Non-U.S. college or university	Professional degree or doctoral equivalent[a]	Research degree
		Very high research activity university	High research activity university	Special-focus institution	Other U.S. college or university			
All early career doctorates	186,700	66.3	12.6	1.4	6.3	13.4	8.4	91.6
Position type[b]								
Faculty	125,600	71.7	13.3	1.5	6.9	6.5	8.3	91.7
Tenured faculty	27,300	77.1	12.6	1.1	4.9	4.3	3.6	96.4
Tenure-track faculty	58,500	77.7	10.7	1.2	3.0	7.3	3.4	96.6
Non-tenure track faculty with rank	13,000	55.7	20.8	3.2	10.2	10.1	22.2	77.8
Other faculty, no rank or tenure	26,800	60.8	15.9	2.0	15.9	5.5	16.9	83.1
Postdoctoral scholar	36,400	52.3	7.1	1.3	1.4	37.9	1.9	98.1
Research scientist or nonfaculty researcher	10,900	64.8	9.1	S	2.6	22.5	1.4	98.6
Other positions	13,800	54.6	23.8	1.2	17.4	3.1	32.2	67.8
Employment setting								
Academic institution[c]	178,900	66.3	12.8	1.5	6.5	12.9	8.7	91.3
Very high research activity university	83,000	70.3	5.9	1.1	1.9	20.8	4.7	95.3
High research activity university	27,500	63.8	21.7	1.2	5.6	7.8	9.1	90.9
Other college or university	68,500	62.5	17.7	2.1	12.4	5.3	13.4	86.6
FFRDC	7,800	65.0	7.6	D	2.9	24.3	D	99.4
Field of doctoral degree								
Science and engineering	112,600	66.3	10.5	1.1	2.6	19.4	1.3	98.7
Biological, agricultural, and environmental life sciences	28,900	56.5	9.8	3.0	1.6	29.1	1.2	98.8
Agricultural and environmental life sciences	3,900	68.0	7.2	D	S	22.0	D	99.3
Biological and biomedical sciences	24,900	54.7	10.2	3.5	1.4	30.3	1.3	98.7
Engineering	17,200	69.4	11.7	D	2.9	15.9	1.5	98.5
Mathematics and computer sciences	12,100	66.3	13.4	D	3.8	16.5	D	99.6
Computer and information sciences	5,900	60.1	13.8	D	6.9	19.2	D	99.1
Mathematics and statistics	6,200	72.0	13.1	D	D	13.9	D	D
Multidisciplinary fields and science and engineering related fields	2,600	50.8	23.6	D	D	22.6	D	99.0

TABLE 2-4

Educational background of early career doctorates, by position type, employment setting, and field of doctoral degree: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Doctoral institution type					Doctoral degree type	
		U.S. institution				Non-U.S. college or university	Professional degree or doctoral equivalent[a]	Research degree
		Very high research activity university	High research activity university	Special-focus institution	Other U.S. college or university			
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	63.8	7.2	D	0.8	28.2	D	D
Psychology and social sciences	31,200	76.8	10.6	1.1	4.2	7.3	2.7	97.3
Psychology	8,700	67.1	17.5	2.5	7.3	5.6	7.7	92.3
Social sciences	22,400	80.6	7.8	0.6	3.1	7.9	0.8	99.2
Health	13,400	54.0	18.2	8.5	12.4	6.9	40.9	59.1
Non-science and engineering	60,700	68.8	15.2	0.5	11.9	3.6	14.3	85.7
Education	21,100	54.5	20.5	D	23.3	1.4	35.3	64.7
Humanities	15,700	81.0	11.9	D	2.4	4.0	D	D
Other non-science and engineering	23,900	73.4	12.8	0.5	8.1	5.3	5.3	94.7

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

[b] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[c] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 2-5

Educational background of early career doctorates, by degree origin, years since doctoral degree, and demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Doctoral institution type					Doctoral degree type	
		U.S. institution				Non-U.S. college or university		
		Very high research activity university	High research activity university	Special-focus institution	Other U.S. college or university		Professional degree or doctoral equivalent[a]	Research degree
All early career doctorates	186,700	66.3	12.6	1.4	6.3	13.4	8.4	91.6
Origin of doctoral degree								
U.S. degree	161,800	76.5	14.6	1.7	7.3	D	9.4	90.6
Non-U.S. degree	24,900	D	D	D	D	D	1.8	98.2
Years since doctoral degree								
1 year or less	36,900	62.7	12.7	1.2	8.0	15.4	9.3	90.7
2–5 years	82,800	64.7	12.5	1.6	6.8	14.5	8.0	92.0
6–10 years	67,000	70.2	12.7	1.4	4.9	10.9	8.4	91.6
Sex								
Female	89,400	66.0	14.3	2.0	7.8	9.8	12.3	87.7
Male	97,300	66.5	11.0	0.9	5.0	16.6	4.8	95.2
Citizenship and sex								
U.S. citizen or permanent resident	156,100	71.5	13.7	1.7	7.3	5.9	9.7	90.3
Female	79,900	69.2	15.1	2.2	8.6	4.9	13.6	86.4
Male	76,300	73.9	12.3	1.1	5.8	6.9	5.6	94.4
Temporary visa holder	30,600	39.5	7.0	0.3	1.7	51.5	1.6	98.4
Female	9,600	38.9	8.4	0.8	1.4	50.5	1.4	98.6
Male	21,000	39.7	6.4	D	1.9	52.0	1.7	98.3
Ethnicity and race								
Hispanic or Latino	13,600	64.3	10.7	0.9	4.3	19.9	6.7	93.3
Not Hispanic or Latino								
Asian	37,600	62.4	10.0	1.2	2.2	24.2	3.3	96.7
Black or African American	10,100	57.7	22.9	S	15.3	2.9	12.7	87.3
White	120,800	67.9	13.0	1.6	7.1	10.4	9.9	90.1
Other race and ethnicity	4,700	79.1	7.6	D	6.6	5.5	4.8	95.2
Age quartile								
32 years and under	38,400	65.3	9.0	0.9	2.2	22.6	4.0	96.0
33–35 year	51,100	69.8	10.2	1.2	2.4	16.3	3.8	96.2
36–40 years	41,900	72.4	11.6	1.6	3.4	11.0	4.4	95.6
41 years or older	55,300	59.0	18.0	1.9	15.1	6.0	18.7	81.3
Disability status								
With disability	51,700	67.6	15.0	1.4	6.6	9.4	9.2	90.8

TABLE 2-5

Educational background of early career doctorates, by degree origin, years since doctoral degree, and demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Doctoral institution type					Doctoral degree type	
		U.S. institution				Non-U.S. college or university	Professional degree or doctoral equivalent[a]	Research degree
		Very high research activity university	High research activity university	Special-focus institution	Other U.S. college or university			
Without disability	135,000	65.7	11.7	1.5	6.3	14.9	8.1	91.9

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

[a] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-1

Mentors of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Did not have any mentors	Had a mentor	Position of mentor				
				Direct supervisor	Senior colleague	Peer or colleague	Doctoral degree advisor	Someone else
All early career doctorates	186,700	25.6	74.4	72.8	79.3	59.5	70.9	26.5
Position type[a]								
Faculty	125,600	26.9	73.1	64.4	87.9	65.1	71.9	28.0
Tenured faculty	27,300	30.1	69.9	57.9	88.9	66.7	72.3	26.5
Tenure-track faculty	58,500	19.6	80.4	63.6	91.2	65.9	74.8	25.2
Non-tenure track faculty with rank	13,000	30.4	69.6	76.1	84.1	64.3	61.5	34.0
Other faculty, no rank or tenure	26,800	38.0	62.0	67.9	79.5	61.4	68.9	34.4
Postdoctoral scholar	36,400	18.3	81.7	91.6	56.1	42.3	71.5	21.2
Research scientist or nonfaculty researcher	10,900	31.4	68.6	88.9	67.8	48.4	67.8	18.1
Other positions	13,800	28.0	72.0	81.7	77.9	67.7	61.9	35.4
Employment setting								
Academic institution[b]	178,900	25.4	74.6	72.2	79.3	59.8	71.3	26.9
Very high research activity university	83,000	21.9	78.1	78.3	74.0	55.8	71.4	22.8
High research activity university	27,500	26.6	73.4	65.6	83.9	62.9	70.2	28.3
Other college or university	68,500	29.2	70.8	66.8	84.4	63.9	71.7	31.9
FFRDC	7,800	29.7	70.3	86.8	80.1	51.9	60.7	17.5
Doctoral degree type								
Professional degree or doctoral equivalent[c]	15,700	31.2	68.8	76.7	82.0	70.7	50.7	34.3
Research degree	171,100	25.1	74.9	72.4	79.1	58.5	72.6	25.9
Years since doctoral degree								
1 year or less	36,900	24.3	75.7	80.6	71.8	54.4	75.8	26.2
2–5 years	82,800	23.4	76.6	72.9	78.6	58.9	70.9	27.0
6–10 years	67,000	29.0	71.0	68.0	84.7	63.2	68.0	26.2
Origin of doctoral degree								
U.S. degree	161,800	25.6	74.4	70.9	81.9	62.3	72.1	27.6
Non-U.S. degree	24,900	25.7	74.3	84.7	62.6	40.9	63.2	19.7
Field of doctoral degree								
Science and engineering	112,600	24.6	75.4	76.1	74.9	54.3	71.2	23.5
Biological, agricultural, and environmental life sciences	28,900	17.4	82.6	84.0	67.2	54.4	69.9	22.5
Agricultural and environmental life sciences	3,900	20.0	80.0	74.9	73.0	57.4	71.5	34.5
Biological and biomedical sciences	24,900	17.0	83.0	85.3	66.3	53.9	69.6	20.7
Engineering	17,200	28.1	71.9	79.5	73.8	52.0	68.4	22.1
Mathematics and computer sciences	12,100	34.7	65.3	76.3	80.7	51.1	72.6	21.7
Computer and information sciences	5,900	35.9	64.1	71.9	83.4	54.2	66.9	14.5
Mathematics and statistics	6,200	33.6	66.4	80.2	78.3	48.3	77.8	28.2

TABLE 3-1

Mentors of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Did not have any mentors	Had a mentor	Position of mentor				
				Direct supervisor	Senior colleague	Peer or colleague	Doctoral degree advisor	Someone else
Multidisciplinary fields and science and engineering related fields	2,600	28.3	71.7	80.2	80.1	65.7	65.1	23.9
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	25.2	74.8	82.1	72.4	50.9	68.4	21.6
Psychology and social sciences	31,200	24.8	75.2	61.9	82.5	57.7	75.9	27.1
Psychology	8,700	23.1	76.9	71.2	80.8	56.0	74.7	22.5
Social sciences	22,400	25.4	74.6	58.1	83.1	58.4	76.3	28.9
Health	13,400	21.0	79.0	72.5	84.4	69.0	58.3	29.9
Non-science and engineering	60,700	28.4	71.6	66.4	86.7	67.4	73.4	31.7
Education	21,100	28.0	72.0	71.8	84.1	69.9	65.7	33.7
Humanities	15,700	27.4	72.6	67.6	87.8	69.4	79.7	30.4
Other non-science and engineering	23,900	29.3	70.7	60.8	88.4	63.7	76.0	30.7
Position tenure								
1 year or less	25,700	25.4	74.6	75.9	81.8	59.2	71.8	36.4
More than 1 year but less than 5 years	108,600	23.0	77.0	75.4	76.5	57.3	71.7	24.1
5 years or more	52,400	31.0	69.0	65.1	84.6	64.8	68.6	27.1

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-2

Mentors of early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Did not have any mentors	Had a mentor	Position of mentor				
				Direct supervisor	Senior colleague	Peer or colleague	Doctoral degree advisor	Someone else
All early career doctorates	186,700	25.6	74.4	72.8	79.3	59.5	70.9	26.5
Sex								
Female	89,400	22.7	77.3	70.4	82.6	65.7	69.5	29.2
Male	97,300	28.2	71.8	75.1	76.1	53.3	72.3	23.9
Citizenship and sex								
U.S. citizen or permanent resident	156,100	25.3	74.7	70.3	82.9	63.8	71.3	28.4
Female	79,900	23.0	77.0	69.1	84.7	67.8	69.6	30.3
Male	76,300	27.8	72.2	71.6	81.0	59.3	73.3	26.2
Temporary visa holder	30,600	26.9	73.1	85.9	60.5	36.9	68.6	17.2
Female	9,600	20.3	79.7	80.8	65.5	48.5	68.5	20.5
Male	21,000	29.9	70.1	88.5	57.9	30.9	68.6	15.4
Ethnicity and race								
Hispanic or Latino	13,600	26.1	73.9	70.1	79.1	60.6	72.6	30.2
Not Hispanic or Latino								
Asian	37,600	26.7	73.3	80.0	68.2	43.3	72.5	18.7
Black or African American	10,100	25.0	75.0	68.2	91.1	74.2	66.1	49.6
White	120,800	25.5	74.5	71.2	81.3	62.8	70.6	26.4
Other race and ethnicity	4,700	19.5	80.5	72.6	90.1	67.1	70.2	32.1
Age quartile								
32 years and under	38,400	18.9	81.1	81.4	71.0	50.4	74.1	22.5
33–35 year	51,100	22.7	77.3	74.2	79.0	59.0	71.1	25.4
36–40 years	41,900	25.8	74.2	66.3	82.0	60.9	71.4	26.6
41 years or older	55,300	32.8	67.2	69.5	84.3	66.5	67.5	31.2
Marital status								
Never married	29,500	22.8	77.2	75.1	73.5	56.5	70.1	28.7
Married	135,400	26.2	73.8	72.4	80.0	59.1	71.5	25.8
Marriage-like relationship	11,500	20.6	79.4	70.5	80.2	65.8	73.2	28.6
Separated, divorced, widowed	10,300	30.7	69.3	73.7	86.6	66.5	62.2	27.3
Dependents								
With dependents	96,800	27.1	72.9	71.2	81.1	60.8	70.9	24.4
Without dependents	90,000	24.0	76.0	74.4	77.4	58.2	70.9	28.8
Disability status								
With disability	51,700	25.4	74.6	70.6	81.3	63.9	69.2	27.5
Without disability	135,000	25.6	74.4	73.6	78.5	57.8	71.5	26.2

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-3

Primary career advisor of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Did not have a career advisor	Had a career advisor	Position of primary career advisor				
				Direct supervisor	Senior colleague	Peer or colleague	Doctoral degree advisor	Someone else
All early career doctorates	186,700	8.7	91.3	32.5	31.1	14.5	17.3	4.5
Position type[a]								
Faculty	125,600	8.4	91.6	22.6	37.9	16.3	19.0	4.3
Tenured faculty	27,300	8.9	91.1	18.2	41.8	19.1	17.1	3.7
Tenure-track faculty	58,500	5.3	94.7	20.0	41.5	14.3	21.8	2.5
Non-tenure track faculty with rank	13,000	8.2	91.8	34.8	30.0	17.9	10.0	7.3
Other faculty, no rank or tenure	26,800	14.8	85.2	27.3	28.7	17.2	18.9	7.9
Postdoctoral scholar	36,400	8.3	91.7	58.9	11.1	8.4	17.1	4.5
Research scientist or nonfaculty researcher	10,900	7.4	92.6	53.7	23.5	11.8	6.9	4.1
Other positions	13,800	13.9	86.1	36.6	28.9	16.4	11.3	6.9
Employment setting								
Academic institution[b]	178,900	8.8	91.2	31.7	31.2	14.7	17.7	4.6
Very high research activity university	83,000	7.7	92.3	37.9	28.7	13.0	16.6	3.8
High research activity university	27,500	9.6	90.4	26.3	32.2	16.8	19.2	5.5
Other college or university	68,500	9.9	90.1	26.2	33.9	16.1	18.6	5.2
FFRDC	7,800	6.2	93.8	50.6	29.2	8.9	8.5	2.9
Doctoral degree type								
Professional degree or doctoral equivalent[c]	15,700	13.4	86.6	36.9	34.5	16.6	7.8	4.2
Research degree	171,100	8.3	91.7	32.1	30.8	14.3	18.2	4.6
Years since doctoral degree								
1 year or less	36,900	8.4	91.6	39.6	21.1	9.8	23.8	5.7
2–5 years	82,800	8.2	91.8	33.4	30.4	14.0	18.1	4.1
6–10 years	67,000	9.6	90.4	27.4	37.6	17.7	12.9	4.5
Origin of doctoral degree								
U.S. degree	161,800	8.7	91.3	29.3	32.8	15.3	18.1	4.6
Non-U.S. degree	24,900	8.7	91.3	53.6	20.4	9.3	12.2	4.4
Field of doctoral degree								
Science and engineering	112,600	8.4	91.6	38.0	29.1	13.0	15.8	4.2
Biological, agricultural, and environmental life sciences	28,900	8.7	91.3	45.2	25.1	13.1	11.9	4.8
Agricultural and environmental life sciences	3,900	5.9	94.1	39.9	27.3	14.3	13.9	4.5
Biological and biomedical sciences	24,900	9.2	90.8	46.0	24.7	13.0	11.5	4.8
Engineering	17,200	8.0	92.0	41.0	29.8	9.6	16.2	3.4
Mathematics and computer sciences	12,100	8.5	91.5	34.4	33.0	12.1	16.1	4.4
Computer and information sciences	5,900	11.0	89.0	33.5	32.1	10.4	18.9	S
Mathematics and statistics	6,200	6.2	93.8	35.2	33.9	13.6	13.6	3.7

TABLE 3-3

Primary career advisor of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Did not have a career advisor	Had a career advisor	Position of primary career advisor				
				Direct supervisor	Senior colleague	Peer or colleague	Doctoral degree advisor	Someone else
Multidisciplinary fields and science and engineering related fields	2,600	7.4	92.6	41.2	31.0	12.8	11.9	3.2
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	7.4	92.6	50.1	23.9	11.2	12.4	2.5
Psychology and social sciences	31,200	8.9	91.1	22.5	34.2	16.5	21.6	5.1
Psychology	8,700	8.7	91.3	27.7	30.3	16.1	21.3	4.6
Social sciences	22,400	9.0	91.0	20.5	35.7	16.7	21.8	5.3
Health	13,400	6.8	93.2	34.6	31.0	13.8	15.8	4.7
Non-science and engineering	60,700	9.8	90.2	21.8	35.0	17.3	20.7	5.2
Education	21,100	12.2	87.8	28.0	31.5	18.4	17.8	4.4
Humanities	15,700	9.4	90.6	19.3	37.7	15.7	22.7	4.5
Other non-science and engineering	23,900	8.0	92.0	18.2	36.1	17.5	21.8	6.4
Position tenure								
1 year or less	25,700	7.2	92.8	32.3	26.2	11.8	22.9	6.7
More than 1 year but less than 5 years	108,600	8.6	91.4	35.7	29.6	13.3	17.8	3.7
5 years or more	52,400	9.7	90.3	25.9	36.9	18.4	13.7	5.2

S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-4

Primary career advisor of early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Did not have a career advisor	Had a career advisor	Position of primary career advisor				
				Direct supervisor	Senior colleague	Peer or colleague	Doctoral degree advisor	Someone else
All early career doctorates	186,700	8.7	91.3	32.5	31.1	14.5	17.3	4.5
Sex								
Female	89,400	8.0	92.0	29.4	32.7	15.7	16.8	5.3
Male	97,300	9.4	90.6	35.4	29.6	13.3	17.9	3.8
Citizenship and sex								
U.S. citizen or permanent resident	156,100	8.9	91.1	28.8	33.8	15.8	16.9	4.7
Female	79,900	8.1	91.9	28.0	34.1	16.6	16.0	5.3
Male	76,300	9.7	90.3	29.6	33.4	15.0	17.8	4.1
Temporary visa holder	30,600	8.1	91.9	51.2	17.7	7.7	19.7	3.7
Female	9,600	7.6	92.4	41.1	21.3	8.2	23.7	5.7
Male	21,000	8.3	91.7	55.8	16.0	7.4	17.9	2.8
Ethnicity and race								
Hispanic or Latino	13,600	8.5	91.5	32.8	29.9	14.5	18.4	4.4
Not Hispanic or Latino								
Asian	37,600	8.3	91.7	42.8	23.9	9.4	20.3	3.7
Black or African American	10,100	7.5	92.5	22.7	33.9	16.2	16.6	10.6
White	120,800	9.1	90.9	30.5	33.2	15.8	16.3	4.2
Other race and ethnicity	4,700	5.8	94.2	23.1	32.6	17.0	20.1	7.2
Age quartile								
32 years and under	38,400	6.2	93.8	43.7	22.2	9.4	20.6	4.0
33–35 year	51,100	5.8	94.2	32.8	31.8	13.0	18.8	3.6
36–40 years	41,900	9.5	90.5	26.9	37.2	16.0	15.8	4.1
41 years or older	55,300	12.7	87.3	28.3	32.4	18.5	14.7	6.2
Marital status								
Never married	29,500	7.4	92.6	34.5	27.0	14.4	19.4	4.7
Married	135,400	8.9	91.1	32.4	31.6	14.3	17.2	4.5
Marriage-like relationship	11,500	8.9	91.1	28.8	32.2	15.7	18.3	5.0
Separated, divorced, widowed	10,300	10.4	89.6	32.4	35.3	15.6	12.9	3.8
Dependents								
With dependents	96,800	9.6	90.4	30.5	32.8	15.2	17.0	4.5
Without dependents	90,000	7.9	92.1	34.6	29.4	13.6	17.7	4.6
Disability status								
With disability	51,700	10.5	89.5	29.2	33.5	15.6	17.1	4.5
Without disability	135,000	8.1	91.9	33.8	30.2	14.0	17.4	4.5

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-5

Reason for work-related training of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Received work-related training in the past year		Of those who received training, motivation for training						
		No	Yes	Improve capacity in current occupational field	Increase career advancement opportunities	Gain licensure or certification in current occupational field	Facilitate change to different occupational field	Required or expected by employer	Personal interest	Other reason
All early career doctorates	186,700	37.8	62.2	83.8	50.5	18.7	10.9	37.6	35.0	15.1
Position type[a]										
Faculty	125,600	35.9	64.1	83.1	49.3	19.3	8.1	39.2	33.9	16.4
Tenured faculty	27,300	42.1	57.9	82.0	43.5	18.1	6.2	38.6	29.2	17.0
Tenure-track faculty	58,500	35.0	65.0	80.5	50.8	17.0	7.1	41.4	30.3	15.3
Non-tenure track faculty with rank	13,000	29.7	70.3	85.9	50.8	27.0	9.1	40.0	44.9	17.7
Other faculty, no rank or tenure	26,800	34.6	65.4	88.3	50.4	21.5	11.5	34.5	40.1	17.4
Postdoctoral scholar	36,400	47.2	52.8	82.9	57.0	14.6	20.4	29.7	36.8	11.4
Research scientist or nonfaculty researcher	10,900	45.6	54.4	82.6	53.7	14.9	14.7	37.3	34.0	12.5
Other positions	13,800	24.7	75.3	91.2	46.0	23.9	12.4	39.8	40.9	14.0
Employment setting										
Academic institution[b]	178,900	37.6	62.4	83.9	50.3	19.1	10.8	37.4	35.2	15.3
Very high research activity university	83,000	45.3	54.7	81.4	52.0	15.2	12.5	33.9	33.6	13.2
High research activity university	27,500	36.5	63.5	84.3	48.9	20.8	7.2	36.6	35.9	14.9
Other college or university	68,500	28.8	71.2	86.0	49.3	22.0	10.4	41.0	36.4	17.4
FFRDC	7,800	42.9	57.1	81.2	54.2	9.8	13.2	41.7	29.4	10.2
Doctoral degree type										
Professional degree or doctoral equivalent[c]	15,700	22.3	77.7	92.0	46.3	37.8	15.0	43.2	48.6	16.6
Research degree	171,100	39.3	60.7	82.8	51.0	16.5	10.4	36.9	33.4	15.0
Years since doctoral degree										
1 year or less	36,900	35.0	65.0	86.8	54.5	18.8	14.0	35.9	40.5	15.6
2–5 years	82,800	36.6	63.4	82.8	52.3	18.7	11.2	36.9	34.4	13.1
6–10 years	67,000	41.0	59.0	83.2	45.6	18.7	8.5	39.5	32.3	17.6
Origin of doctoral degree										
U.S. degree	161,800	36.4	63.6	83.9	49.7	18.7	9.4	38.1	34.7	15.3
Non-U.S. degree	24,900	47.3	52.7	82.9	56.9	18.6	22.4	33.2	37.3	14.1
Field of doctoral degree										

TABLE 3-5

Reason for work-related training of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Received work-related training in the past year		Of those who received training, motivation for training						
		No	Yes	Improve capacity in current occupational field	Increase career advancement opportunities	Gain licensure or certification in current occupational field	Facilitate change to different occupational field	Required or expected by employer	Personal interest	Other reason
Science and engineering	112,600	42.9	57.1	81.8	50.9	14.0	10.9	36.3	33.1	14.5
Biological, agricultural, and environmental life sciences	28,900	40.9	59.1	84.3	53.1	15.0	15.3	36.4	34.7	13.4
Agricultural and environmental life sciences	3,900	34.9	65.1	81.0	55.1	17.1	15.5	41.6	42.1	12.0
Biological and biomedical sciences	24,900	41.8	58.2	84.9	52.8	14.7	15.2	35.5	33.3	13.6
Engineering	17,200	43.7	56.3	82.3	55.2	16.6	12.5	34.5	29.6	13.8
Mathematics and computer sciences	12,100	47.1	52.9	82.2	47.9	7.4	7.0	38.1	34.0	13.1
Computer and information sciences	5,900	48.6	51.4	80.9	44.6	9.0	5.5	33.1	31.7	18.7
Mathematics and statistics	6,200	45.7	54.3	83.4	50.9	6.0	8.4	42.5	36.0	8.2
Multidisciplinary fields and science and engineering related fields	2,600	46.4	53.6	79.0	58.4	21.6	11.1	35.2	23.9	S
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	44.5	55.5	76.9	50.5	11.5	13.4	35.3	32.8	16.7
Psychology and social sciences	31,200	41.1	58.9	82.4	47.2	14.8	5.8	37.1	34.2	15.8
Psychology	8,700	36.0	64.0	85.4	43.3	27.1	6.2	33.3	39.8	15.8
Social sciences	22,400	43.2	56.8	81.1	49.0	9.4	5.6	38.8	31.7	15.8
Health	13,400	23.1	76.9	90.0	53.7	51.3	15.3	41.7	42.5	12.0
Non-science and engineering	60,700	31.8	68.2	85.2	49.1	18.0	9.7	38.6	36.0	16.9
Education	21,100	22.4	77.6	91.9	44.3	18.7	11.9	36.6	39.9	13.6
Humanities	15,700	39.3	60.7	74.1	46.7	10.9	7.4	37.2	37.0	21.5
Other non-science and engineering	23,900	35.2	64.8	85.0	55.6	21.6	8.7	41.5	31.3	17.5
Position tenure										
1 year or less	25,700	34.8	65.2	85.5	50.6	20.6	11.9	38.4	34.2	15.7

TABLE 3-5

Reason for work-related training of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Received work-related training in the past year		Of those who received training, motivation for training						
		No	Yes	Improve capacity in current occupational field	Increase career advancement opportunities	Gain licensure or certification in current occupational field	Facilitate change to different occupational field	Required or expected by employer	Personal interest	Other reason
More than 1 year but less than 5 years	108,600	37.6	62.4	83.6	51.9	17.5	11.5	36.9	34.6	13.5
5 years or more	52,400	39.8	60.2	83.1	47.3	20.4	8.9	38.6	36.1	18.2

S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-6

Reason for work-related training of early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Received work-related training in the past year		Of those who received training, motivation for training						
		No	Yes	Improve capacity in current occupational field	Increase career advancement opportunities	Gain licensure or certification in current occupational field	Facilitate change to different occupational field	Required or expected by employer	Personal interest	Other reason
All early career doctorates	186,700	37.8	62.2	83.8	50.5	18.7	10.9	37.6	35.0	15.1
Sex										
Female	89,400	31.6	68.4	85.9	50.1	21.7	10.1	35.9	38.2	15.9
Male	97,300	43.6	56.4	81.4	51.0	15.4	11.7	39.5	31.4	14.3
Citizenship and sex										
U.S. citizen or permanent resident	156,100	36.6	63.4	83.5	49.4	19.0	9.4	38.1	35.3	15.7
Female	79,900	30.9	69.1	86.1	49.2	22.6	9.2	36.0	38.4	16.4
Male	76,300	42.6	57.4	80.2	49.6	14.4	9.7	40.8	31.4	14.8
Temporary visa holder	30,600	44.2	55.8	85.3	57.0	17.1	19.2	34.7	33.1	12.1
Female	9,600	37.7	62.3	83.5	58.6	13.2	19.0	35.1	36.3	11.6
Male	21,000	47.2	52.8	86.2	56.1	19.2	19.3	34.4	31.4	12.3
Ethnicity and race										
Hispanic or Latino	13,600	38.8	61.2	83.1	54.0	18.8	13.7	37.8	36.1	15.4
Not Hispanic or Latino										
Asian	37,600	41.9	58.1	88.5	57.3	17.7	16.8	33.8	30.1	13.3
Black or African American	10,100	25.9	74.1	87.6	53.6	22.2	9.9	38.6	32.7	15.8
White	120,800	37.6	62.4	82.1	47.6	18.7	9.0	38.9	36.3	15.6
Other race and ethnicity	4,700	35.3	64.7	83.6	55.1	17.4	8.8	29.2	41.2	15.4
Age quartile										
32 years and under	38,400	41.1	58.9	84.8	55.8	16.3	14.6	34.1	39.3	12.6
33–35 year	51,100	40.3	59.7	80.4	52.4	15.1	9.7	37.8	34.5	13.6
36–40 years	41,900	39.8	60.2	81.0	50.2	16.1	9.8	38.3	33.8	15.5
41 years or older	55,300	31.9	68.1	87.7	45.9	24.8	10.2	39.0	33.5	17.7
Marital status										
Never married	29,500	42.4	57.6	85.1	49.4	15.7	12.6	38.6	38.2	13.6
Married	135,400	37.1	62.9	83.8	49.9	19.0	10.3	37.4	33.9	15.1
Marriage-like relationship	11,500	38.0	62.0	81.9	56.2	16.5	14.6	39.7	36.4	13.4

TABLE 3-6

Reason for work-related training of early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Received work-related training in the past year		Of those who received training, motivation for training						
		No	Yes	Improve capacity in current occupational field	Increase career advancement opportunities	Gain licensure or certification in current occupational field	Facilitate change to different occupational field	Required or expected by employer	Personal interest	Other reason
Separated, divorced, widowed	10,300	34.3	65.7	81.6	55.1	25.2	9.2	35.0	38.9	21.4
Dependents										
With dependents	96,800	37.0	63.0	83.7	51.0	17.8	9.7	37.6	32.5	16.3
Without dependents	90,000	38.7	61.3	83.9	50.0	19.7	12.1	37.6	37.7	13.8
Disability status										
With disability	51,700	36.6	63.4	81.0	49.9	20.3	10.0	38.2	36.6	18.5
Without disability	135,000	38.3	61.7	84.8	50.7	18.1	11.2	37.3	34.3	13.8

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-7

Frequency of work-related interaction between supervisors and early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Once a day or more	At least once a week but not every day	At least once a month but not every week	At least once a year but not every month	Never	Did not have supervisor
All early career doctorates	186,700	3.2	21.7	22.9	32.0	3.6	16.5
Position type[a]							
Faculty	125,600	1.3	8.6	18.8	42.9	5.0	23.4
Tenured faculty	27,300	1.4	6.3	17.1	41.9	5.7	27.7
Tenure-track faculty	58,500	0.9	6.9	16.3	43.1	2.8	30.0
Non-tenure track faculty with rank	13,000	3.9	24.0	22.5	39.9	2.5	7.2
Other faculty, no rank or tenure	26,800	0.8	7.5	24.4	44.9	10.3	12.2
Postdoctoral scholar	36,400	7.6	55.0	28.2	7.3	0.6	1.4
Research scientist or nonfaculty researcher	10,900	8.4	44.3	30.1	11.3	D	5.6
Other positions	13,800	5.5	34.9	40.7	14.7	1.0	3.3
Employment setting							
Academic institution[b]	178,900	3.1	20.5	22.7	32.8	3.7	17.2
Very high research activity university	83,000	3.9	28.3	22.0	24.6	2.4	18.8
High research activity university	27,500	2.9	15.7	19.9	37.8	5.7	18.0
Other college or university	68,500	2.2	13.0	24.7	40.8	4.4	14.9
FFRDC	7,800	6.6	48.9	28.3	13.5	D	2.3
Doctoral degree type							
Professional degree or doctoral equivalent[c]	15,700	4.4	23.4	29.5	34.0	4.9	3.9
Research degree	171,100	3.1	21.6	22.3	31.8	3.4	17.7
Years since doctoral degree							
1 year or less	36,900	3.9	33.7	26.7	23.2	3.0	9.5
2–5 years	82,800	3.6	23.1	22.7	32.3	2.9	15.3
6–10 years	67,000	2.4	13.3	21.2	36.5	4.6	22.0
Origin of doctoral degree							
U.S. degree	161,800	2.5	18.7	23.1	34.7	3.8	17.2
Non-U.S. degree	24,900	8.0	41.5	21.9	14.4	1.9	12.4
Field of doctoral degree							
Science and engineering	112,600	3.8	26.0	22.1	26.5	2.8	18.8
Biological, agricultural, and environmental life sciences	28,900	5.4	34.8	25.4	22.3	1.7	10.5
Agricultural and environmental life sciences	3,900	3.7	26.2	30.5	28.2	D	10.1
Biological and biomedical sciences	24,900	5.7	36.1	24.5	21.3	1.8	10.6
Engineering	17,200	3.4	31.0	23.8	23.7	2.0	16.1
Mathematics and computer sciences	12,100	3.2	19.4	20.3	29.4	1.8	25.8
Computer and information sciences	5,900	4.3	19.9	22.0	29.0	2.3	22.5
Mathematics and statistics	6,200	S	18.9	18.8	29.8	1.4	29.0

TABLE 3-7

Frequency of work-related interaction between supervisors and early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Once a day or more	At least once a week but not every day	At least once a month but not every week	At least once a year but not every month	Never	Did not have supervisor
Multidisciplinary fields and science and engineering related fields	2,600	S	17.5	25.4	29.4	D	23.0
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	5.6	37.7	20.8	17.7	1.8	16.4
Psychology and social sciences	31,200	1.8	10.6	19.6	36.4	5.4	26.3
Psychology	8,700	2.4	13.9	17.6	34.0	4.3	27.9
Social sciences	22,400	1.5	9.3	20.3	37.3	5.9	25.7
Health	13,400	3.8	21.1	21.3	43.5	3.4	7.0
Non-science and engineering	60,700	2.0	13.9	24.8	39.7	5.0	14.6
Education	21,100	3.1	23.5	31.1	30.5	4.8	7.0
Humanities	15,700	1.5	8.0	21.5	42.5	5.5	21.1
Other non-science and engineering	23,900	1.4	9.4	21.5	46.0	4.8	16.9
Position tenure							
1 year or less	25,700	2.3	19.2	31.0	29.8	4.2	13.6
More than 1 year but less than 5 years	108,600	3.8	26.2	22.5	29.9	2.6	15.0
5 years or more	52,400	2.5	13.6	19.9	37.5	5.3	21.2

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-8

Interaction between supervisors and early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Provided appropriate recognition for work			Encouraged collaboration with others			Encouraged increasing independence in research or work			Provided opportunities to work on grant proposals			Supported publishing papers or presenting work			Provided career guidance			Encouraged work-life balance		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
Early career doctorates with supervisors	155,800	15.1	8.9	76.0	14.0	19.1	66.9	12.7	21.3	66.0	21.5	26.9	51.6	9.6	11.5	79.0	20.7	20.4	59.0	17.9	23.0	59.0
Position type[a]																						
Faculty	96,300	17.0	10.1	72.9	16.0	23.4	60.6	14.6	26.4	59.0	23.3	30.9	45.8	10.8	13.4	75.8	22.9	23.7	53.4	19.3	26.3	54.5
Tenured faculty	19,800	17.8	8.0	74.2	13.4	19.2	67.5	14.6	23.2	62.1	19.2	24.1	56.7	6.8	8.9	84.3	21.4	22.4	56.2	19.7	22.9	57.4
Tenure-track faculty	40,900	16.2	9.2	74.5	14.6	18.7	66.7	12.3	23.5	64.2	19.7	27.3	53.1	8.1	7.0	84.9	20.3	19.1	60.6	19.1	23.6	57.3
Non-tenure track faculty with rank	12,000	18.4	7.6	74.0	16.3	24.4	59.2	16.2	24.2	59.6	22.5	31.0	46.4	10.6	11.1	78.3	25.0	24.2	50.8	17.5	26.7	55.8
Other faculty, no rank or tenure	23,500	16.9	14.6	68.4	20.6	34.6	44.8	17.8	35.2	47.0	33.5	42.7	23.8	19.0	29.4	51.6	27.8	32.3	39.9	20.1	33.5	46.4
Postdoctoral scholar	35,900	11.7	5.7	82.5	10.9	8.5	80.5	8.9	9.6	81.4	18.2	17.0	64.8	6.1	3.8	90.1	16.2	12.9	70.9	17.4	18.3	64.3
Research scientist or nonfaculty researcher	10,300	9.4	8.8	81.8	7.6	9.3	83.2	8.4	13.2	78.4	15.2	17.5	67.3	6.2	9.3	84.5	14.7	16.4	68.9	11.8	18.0	70.3
Other positions	13,300	14.8	8.4	76.8	12.2	24.1	63.7	12.4	22.7	64.9	22.6	32.2	45.2	12.7	20.0	67.4	20.9	19.8	59.3	14.6	16.4	69.0
Employment setting																						
Academic institution[b]	148,200	15.4	9.0	75.7	14.3	19.6	66.1	12.8	21.8	65.4	21.7	27.2	51.1	9.7	11.7	78.7	21.0	20.7	58.3	18.2	23.4	58.4
Very high research activity university	67,400	14.5	8.1	77.3	12.8	13.9	73.2	11.0	15.5	73.5	19.9	20.6	59.5	9.2	8.9	81.9	19.2	16.4	64.4	18.8	21.8	59.4
High research activity university	22,500	16.9	9.7	73.4	15.9	21.3	62.8	15.3	24.3	60.5	25.1	29.7	45.2	10.9	13.1	76.0	24.7	20.0	55.3	19.4	28.7	51.9
Other college or university	58,300	15.7	9.6	74.6	15.2	25.5	59.2	14.0	28.1	57.9	22.6	33.7	43.7	9.7	14.3	76.0	21.5	25.9	52.5	17.0	23.3	59.8
FFRDC	7,600	10.0	6.9	83.1	8.3	9.3	82.4	10.2	12.3	77.5	17.7	21.5	60.8	8.3	7.6	84.1	14.6	13.9	71.5	13.3	15.5	71.3
Doctoral degree type																						
Professional degree or doctoral equivalent[c]	15,100	18.6	10.9	70.5	18.5	24.8	56.7	17.6	26.9	55.5	29.2	33.6	37.2	13.1	20.8	66.2	23.6	26.6	49.8	18.4	21.8	59.8
Research degree	140,800	14.7	8.6	76.6	13.5	18.5	68.0	12.2	20.7	67.1	20.7	26.2	53.1	9.2	10.5	80.3	20.3	19.7	59.9	17.9	23.2	58.9
Years since doctoral degree																						
1 year or less	33,400	12.1	8.7	79.2	11.8	16.2	72.1	10.9	18.9	70.1	21.8	26.4	51.8	8.2	9.1	82.7	17.5	17.0	65.5	16.6	19.4	64.0
2–5 years	70,100	15.9	8.4	75.7	14.8	19.1	66.0	13.5	19.8	66.6	22.7	26.6	50.8	10.3	11.6	78.1	21.9	18.9	59.2	18.7	23.0	58.4
6–10 years	52,300	15.9	9.7	74.4	14.2	20.9	64.9	12.7	24.9	62.4	19.8	27.7	52.5	9.5	12.8	77.8	21.0	24.5	54.5	17.8	25.5	56.7
Origin of doctoral degree																						

TABLE 3-8

Interaction between supervisors and early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Provided appropriate recognition for work			Encouraged collaboration with others			Encouraged increasing independence in research or work			Provided opportunities to work on grant proposals			Supported publishing papers or presenting work			Provided career guidance			Encouraged work-life balance		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
U.S. degree	134,000	15.4	9.3	75.3	14.2	20.4	65.4	13.0	22.7	64.3	22.0	28.3	49.7	9.9	12.1	78.0	21.2	20.9	57.9	17.9	23.5	58.6
Non-U.S. degree	21,800	13.0	6.2	80.8	12.8	11.1	76.1	10.7	13.1	76.2	18.6	18.1	63.3	7.6	7.2	85.1	17.2	17.3	65.5	18.2	20.1	61.7
Field of doctoral degree																						
Science and engineering	91,500	14.0	7.7	78.3	11.6	15.3	73.2	10.7	18.2	71.2	18.5	22.2	59.4	8.5	8.8	82.7	18.6	17.6	63.7	16.8	23.2	60.0
Biological, agricultural, and environmental life sciences	25,900	13.5	6.7	79.8	11.7	12.9	75.4	8.8	13.8	77.5	15.6	20.2	64.2	6.8	7.3	85.9	19.8	19.0	61.2	17.6	22.1	60.3
Agricultural and environmental life sciences	3,500	13.1	2.7	84.2	10.2	10.1	79.7	13.2	12.2	74.6	15.5	16.8	67.7	6.0	9.3	84.7	18.9	19.2	61.9	15.9	21.1	63.0
Biological and biomedical sciences	22,300	13.6	7.3	79.1	11.9	13.4	74.8	8.1	14.0	77.9	15.6	20.7	63.6	6.9	7.0	86.1	20.0	18.9	61.1	17.8	22.3	59.9
Engineering	14,500	13.7	8.1	78.1	11.0	12.6	76.4	11.4	16.8	71.8	19.8	17.4	62.8	7.9	11.8	80.3	16.0	17.3	66.7	13.5	25.4	61.0
Mathematics and computer sciences	9,000	10.7	5.4	83.9	9.3	12.7	78.1	8.6	18.2	73.2	15.4	22.0	62.6	9.0	10.2	80.7	13.5	20.0	66.4	12.4	25.1	62.5
Computer and information sciences	4,500	13.3	4.3	82.4	12.4	9.7	78.0	11.4	15.7	72.9	18.2	17.9	63.9	13.2	8.1	78.6	17.5	20.4	62.1	14.2	23.5	62.3
Mathematics and statistics	4,400	8.0	6.5	85.4	6.1	15.8	78.2	5.8	20.8	73.4	12.5	26.3	61.2	S	12.4	82.9	9.5	19.6	70.9	10.6	26.8	62.6
Multidisciplinary fields and science and engineering related fields	2,000	8.8	8.7	82.6	14.8	9.8	75.4	11.6	16.3	72.2	16.0	14.1	69.9	7.8	3.8	88.4	17.8	10.3	71.9	14.9	21.4	63.7
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	17,300	13.8	6.1	80.1	10.2	11.4	78.4	11.5	13.9	74.6	16.8	21.9	61.4	7.2	6.8	86.0	17.2	13.0	69.8	18.9	20.4	60.7
Psychology and social sciences	23,000	16.6	10.4	73.0	13.5	24.0	62.5	12.4	27.4	60.2	23.5	28.5	48.0	11.8	9.8	78.4	22.1	19.6	58.4	18.4	24.5	57.1
Psychology	6,300	14.4	10.4	75.3	14.8	20.0	65.2	12.7	21.4	65.9	27.8	24.5	47.7	13.5	13.8	72.8	23.2	16.6	60.3	21.4	19.6	59.0
Social sciences	16,700	17.4	10.5	72.1	13.0	25.5	61.5	12.3	29.7	58.0	21.9	30.0	48.1	11.2	8.3	80.5	21.6	20.7	57.7	17.3	26.3	56.4
Health	12,500	14.2	11.9	73.9	14.9	19.5	65.6	11.7	21.8	66.5	25.2	26.0	48.8	10.4	10.3	79.3	24.3	15.6	60.1	18.0	19.8	62.2
Non-science and engineering	51,900	17.2	10.2	72.5	18.0	25.8	56.3	16.5	26.8	56.7	26.0	35.4	38.5	11.2	16.5	72.3	23.4	26.3	50.3	19.9	23.6	56.5

TABLE 3-8

Interaction between supervisors and early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Provided appropriate recognition for work			Encouraged collaboration with others			Encouraged increasing independence in research or work			Provided opportunities to work on grant proposals			Supported publishing papers or presenting work			Provided career guidance			Encouraged work-life balance		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
Education	19,600	17.4	10.1	72.5	16.6	24.5	58.8	16.4	28.5	55.1	30.1	31.0	38.9	13.1	21.2	65.7	24.5	28.7	46.8	19.0	21.9	59.1
Humanities	12,400	16.1	9.9	74.0	17.6	32.3	50.2	12.4	28.3	59.3	23.5	38.4	38.1	11.6	16.3	72.1	20.6	24.3	55.1	18.4	24.7	57.0
Other non-science and engineering	19,900	17.7	10.7	71.6	19.5	22.9	57.6	19.2	24.1	56.6	23.7	38.0	38.4	9.2	11.9	78.9	24.1	25.1	50.8	21.7	24.5	53.8
Position tenure																						
1 year or less	22,200	11.5	12.5	76.1	13.3	23.5	63.2	13.3	24.1	62.6	21.9	36.5	41.6	11.6	16.1	72.3	18.5	24.7	56.8	15.6	26.1	58.3
More than 1 year but less than 5 years	92,300	15.1	7.7	77.2	13.7	16.3	70.0	12.1	18.7	69.2	21.1	24.0	54.9	9.2	9.6	81.2	20.7	17.4	61.9	18.3	20.7	61.0
5 years or more	41,300	17.0	9.4	73.5	14.9	23.0	62.1	13.6	25.8	60.6	22.3	28.1	49.6	9.4	13.2	77.5	21.7	24.6	53.7	18.4	26.6	55.0

S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding. Includes only early career doctorates with a supervisor.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-9

Interaction between supervisors and early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Provided appropriate recognition for work			Encouraged collaboration with others			Encouraged increasing independence in research or work			Provided opportunities to work on grant proposals			Supported publishing papers or presenting work			Provided career guidance			Encouraged work-life balance		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
Early career doctorates with supervisors	155,800	15.1	8.9	76.0	14.0	19.1	66.9	12.7	21.3	66.0	21.5	26.9	51.6	9.6	11.5	79.0	20.7	20.4	59.0	17.9	23.0	59.0
Sex																						
Female	75,000	16.6	9.5	73.8	15.4	21.5	63.1	13.0	22.8	64.2	24.5	27.6	47.9	10.6	12.3	77.1	23.7	20.6	55.8	20.2	21.6	58.2
Male	80,900	13.7	8.3	78.1	12.6	16.9	70.5	12.4	20.0	67.6	18.8	26.2	55.0	8.6	10.6	80.7	17.9	20.2	61.9	15.9	24.4	59.7
Citizenship and sex																						
U.S. citizen or permanent resident	128,200	15.6	9.4	75.0	14.5	20.8	64.8	13.1	23.1	63.8	22.1	28.6	49.4	9.7	12.6	77.7	21.1	21.3	57.6	17.9	23.4	58.6
Female	66,600	17.2	9.9	73.0	15.8	22.5	61.6	13.4	23.7	62.9	24.9	28.3	46.7	10.8	13.0	76.2	23.9	21.0	55.1	20.1	21.6	58.2
Male	61,600	14.0	8.9	77.1	13.0	18.9	68.1	12.7	22.6	64.7	19.0	28.8	52.2	8.6	12.1	79.3	18.0	21.6	60.4	15.6	25.4	59.0
Temporary visa holder	27,700	12.7	6.3	81.0	11.6	11.3	77.1	11.0	12.9	76.1	19.0	19.2	61.8	8.9	6.2	84.9	18.7	16.0	65.3	18.0	21.1	60.9
Female	8,300	12.5	6.6	80.9	11.7	13.3	74.9	10.1	15.4	74.5	21.0	22.2	56.8	9.1	6.8	84.1	21.3	17.2	61.5	20.5	21.2	58.3
Male	19,300	12.7	6.2	81.1	11.6	10.4	78.0	11.4	11.9	76.7	18.1	17.9	64.0	8.8	6.0	85.2	17.6	15.6	66.9	16.9	21.1	62.0
Ethnicity and race																						
Hispanic or Latino	11,000	13.8	12.2	74.0	14.3	19.8	65.9	12.5	20.1	67.5	20.0	25.4	54.6	10.2	9.6	80.1	18.3	21.4	60.4	19.1	23.3	57.6
Not Hispanic or Latino																						
Asian	31,600	14.3	6.7	79.0	13.7	12.4	73.8	13.0	14.5	72.4	19.5	23.6	56.8	11.4	9.3	79.4	17.0	18.4	64.5	15.8	22.7	61.5
Black or African American	8,900	13.2	11.7	75.1	11.7	25.7	62.6	11.7	26.1	62.1	21.7	28.9	49.4	10.9	13.0	76.2	21.2	24.7	54.1	20.0	24.1	55.9
White	100,600	15.6	8.8	75.6	14.1	20.6	65.3	12.6	23.0	64.4	22.1	27.9	50.0	8.7	12.3	79.0	21.8	20.6	57.6	18.1	23.2	58.8
Other race and ethnicity	3,800	16.2	12.5	71.3	16.8	17.6	65.7	15.1	25.7	59.2	27.9	26.9	45.3	12.9	9.9	77.2	25.6	17.5	56.8	24.4	19.2	56.4
Age quartile																						
32 years and under	34,000	12.4	7.2	80.4	11.4	10.9	77.7	9.4	14.0	76.7	19.2	23.0	57.9	7.4	6.1	86.5	17.2	13.0	69.8	18.0	17.8	64.2
33–35 year	40,800	14.5	7.4	78.1	13.3	18.4	68.3	12.2	20.0	67.9	20.1	24.5	55.4	8.0	10.5	81.5	19.1	18.3	62.5	17.4	22.1	60.4
36–40 years	32,800	15.1	9.3	75.6	12.6	20.8	66.6	12.6	22.3	65.0	19.3	27.9	52.8	9.3	10.8	79.8	20.9	21.4	57.8	16.1	24.0	59.9
41 years or older	48,300	17.5	11.0	71.5	17.3	24.3	58.5	15.5	27.0	57.5	25.9	31.0	43.1	12.6	16.4	71.0	24.2	26.5	49.2	19.6	26.8	53.6
Marital status																						
Never married	25,400	15.9	9.1	75.0	14.4	17.7	67.9	13.0	18.9	68.1	22.4	26.2	51.5	8.6	9.0	82.4	20.4	15.9	63.7	20.8	24.5	54.7

TABLE 3-9

Interaction between supervisors and early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Provided appropriate recognition for work			Encouraged collaboration with others			Encouraged increasing independence in research or work			Provided opportunities to work on grant proposals			Supported publishing papers or presenting work			Provided career guidance			Encouraged work-life balance		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
Married	112,300	14.4	8.7	76.9	13.3	19.1	67.7	12.0	21.5	66.5	20.6	26.9	52.5	9.4	11.8	78.8	19.8	21.1	59.1	16.6	22.5	60.8
Marriage-like relationship	9,100	18.8	7.8	73.4	18.9	14.3	66.8	16.7	18.2	65.2	27.1	23.8	49.2	9.4	10.5	80.1	29.2	17.4	53.5	23.5	19.9	56.6
Separated, divorced, widowed	8,900	17.5	11.6	70.9	16.5	28.1	55.4	16.4	29.1	54.5	25.6	32.2	42.2	15.2	15.2	69.6	23.9	27.3	48.8	20.7	28.3	51.0
Dependents																						
With dependents	79,100	14.4	9.2	76.4	13.3	20.5	66.2	13.1	21.5	65.4	20.3	27.7	52.1	9.5	11.8	78.7	19.8	21.4	58.7	15.4	22.3	62.3
Without dependents	76,700	15.8	8.5	75.7	14.6	17.6	67.7	12.3	21.1	66.6	22.8	26.1	51.1	9.7	11.1	79.3	21.5	19.3	59.2	20.6	23.8	55.6
Disability status																						
With disability	44,100	16.6	10.2	73.2	15.3	22.4	62.3	13.4	23.4	63.2	22.8	29.4	47.8	10.1	13.0	76.9	21.8	22.6	55.6	20.4	24.5	55.1
Without disability	111,800	14.5	8.3	77.2	13.4	17.8	68.8	12.4	20.5	67.1	21.0	25.9	53.1	9.4	10.8	79.8	20.2	19.5	60.3	17.0	22.5	60.6

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding. Includes only early career doctorates with a supervisor.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 3-10

Performance plan and evaluation of early career doctorates with supervisors, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates with supervisors	Had written performance plan	Of those with written performance plan, percent whose plan reflected personal career development goals a great deal	Has had formal performance evaluation
Early career doctorates with supervisors	155,800	55.3	49.7	75.5
Position type[a]				
Faculty	96,300	52.3	50.4	84.1
Tenured faculty	19,800	49.5	49.4	90.4
Tenure-track faculty	40,900	57.7	57.2	92.1
Non-tenure track faculty with rank	12,000	58.2	53.1	86.1
Other faculty, no rank or tenure	23,500	42.2	33.1	63.6
Postdoctoral scholar	35,900	54.7	54.1	46.7
Research scientist or nonfaculty researcher	10,300	67.8	40.9	82.6
Other positions	13,300	69.5	42.8	85.7
Employment setting				
Academic institution[b]	148,200	54.5	49.8	74.9
Very high research activity university	67,400	54.5	50.2	64.7
High research activity university	22,500	54.3	48.7	78.4
Other college or university	58,300	54.5	49.7	85.3
FFRDC	7,600	71.7	47.6	86.7
Doctoral degree type				
Professional degree or doctoral equivalent[c]	15,100	59.0	43.3	78.5
Research degree	140,800	54.9	50.4	75.2
Years since doctoral degree				
1 year or less	33,400	56.0	54.2	63.2
2–5 years	70,100	54.9	49.3	75.0
6–10 years	52,300	55.6	47.2	84.0
Origin of doctoral degree				
U.S. degree	134,000	54.6	49.5	77.9
Non-U.S. degree	21,800	59.7	50.5	60.5
Field of doctoral degree				
Science and engineering	91,500	56.2	50.3	70.5
Biological, agricultural, and environmental life sciences	25,900	58.4	48.4	62.6
Agricultural and environmental life sciences	3,500	65.5	43.3	66.3
Biological and biomedical sciences	22,300	57.2	49.3	62.1
Engineering	14,500	63.2	48.1	76.1
Mathematics and computer sciences	9,000	55.8	48.2	72.9
Computer and information sciences	4,500	62.5	48.0	76.7
Mathematics and statistics	4,400	48.8	48.4	68.9

TABLE 3-10

Performance plan and evaluation of early career doctorates with supervisors, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates with supervisors	Had written performance plan	Of those with written performance plan, percent whose plan reflected personal career development goals a great deal	Has had formal performance evaluation
Multidisciplinary fields and science and engineering related fields	2,000	68.2	40.5	76.3
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	17,300	54.8	50.2	65.2
Psychology and social sciences	23,000	49.7	56.5	78.4
Psychology	6,300	51.3	63.3	75.1
Social sciences	16,700	49.1	53.9	79.7
Health	12,500	66.8	57.9	80.9
Non-science and engineering	51,900	51.0	45.9	83.0
Education	19,600	53.6	43.1	79.4
Humanities	12,400	46.0	44.0	83.2
Other non-science and engineering	19,900	51.5	49.7	86.3
Position tenure				
1 year or less	22,200	48.1	54.7	64.9
More than 1 year but less than 5 years	92,300	57.7	50.6	72.9
5 years or more	41,300	54.1	44.9	87.0

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding. Includes only early career doctorates with a supervisor.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 4-1

Scholarly activity of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Wrote technical reports or working papers	Attended professional conferences	Served as a reviewer for conference, journal or organization	Supervised graduate students, postdoctoral scholars, or staff	Taught courses	Provided clinical or professional services	Developed marketable products	Worked with researchers outside home department or lab	Served as principal or coinvestigator on funded grants	Prepared proposals as principal or co-investigator	Prepared proposals in role other than principal or co-investigator
All early career doctorates	186,700	69.7	90.9	77.1	71.6	76.5	24.7	10.8	72.3	42.1	55.4	31.7
Position type[a]												
Faculty	125,600	64.2	91.1	80.1	70.9	96.4	28.8	10.3	71.3	48.6	61.6	27.0
Tenured faculty	27,300	72.9	99.6	97.0	82.7	98.7	33.8	12.3	84.3	67.1	78.7	37.5
Tenure-track faculty	58,500	73.7	98.4	92.0	79.0	98.1	29.0	9.7	83.8	57.6	74.8	29.1
Non-tenure track faculty with rank	13,000	67.8	94.3	76.0	73.9	87.9	42.5	14.7	68.7	42.5	55.3	26.1
Other faculty, no rank or tenure	26,800	32.6	64.9	39.2	39.8	94.7	16.8	7.3	31.9	13.1	18.5	12.2
Postdoctoral scholar	36,400	83.8	90.3	75.2	71.6	28.7	8.0	8.3	79.2	22.6	41.4	43.5
Research scientist or nonfaculty researcher	10,900	90.5	90.6	74.2	71.9	29.2	19.1	16.7	81.2	45.6	55.1	47.4
Other positions	13,800	66.2	90.8	56.9	77.4	59.2	36.1	18.5	56.6	31.3	36.3	30.8
Employment setting												
Academic institution[b]	178,900	68.7	90.7	77.0	71.7	79.2	25.3	10.6	71.7	42.1	55.5	31.1
Very high research activity university	83,000	74.1	91.1	79.7	78.8	64.7	18.8	10.2	77.8	42.9	56.2	38.3
High research activity university	27,500	66.3	91.7	78.7	74.9	89.0	29.5	11.5	70.9	46.2	58.3	28.5
Other college or university	68,500	62.9	89.9	73.0	61.8	92.9	31.5	10.8	64.6	39.3	53.5	23.5
FFRDC	7,800	93.6	94.8	79.9	68.3	15.2	10.8	15.9	87.3	42.4	54.4	45.1
Doctoral degree type												
Professional degree or doctoral equivalent[c]	15,700	54.5	83.3	50.8	69.3	83.4	51.1	15.3	41.5	30.0	34.3	18.2
Research degree	171,100	71.1	91.6	79.5	71.8	75.9	22.3	10.4	75.2	43.2	57.4	33.0
Years since doctoral degree												
1 year or less	36,900	70.2	86.5	66.9	62.6	61.7	20.1	10.0	67.0	27.2	42.1	28.4
2–5 years	82,800	69.5	90.5	77.0	71.7	76.1	23.6	10.9	71.7	38.7	54.4	31.7
6–10 years	67,000	69.7	93.8	82.9	76.4	85.3	28.7	11.3	76.0	54.4	64.1	33.6
Origin of doctoral degree												

TABLE 4-1

Scholarly activity of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Wrote technical reports or working papers	Attended professional conferences	Served as a reviewer for conference, journal or organization	Supervised graduate students, postdoctoral scholars, or staff	Taught courses	Provided clinical or professional services	Developed marketable products	Worked with researchers outside home department or lab	Served as principal or coinvestigator on funded grants	Prepared proposals as principal or co-investigator	Prepared proposals in role other than principal or co-investigator
U.S. degree	161,800	67.4	91.0	76.9	70.9	81.4	26.4	11.0	71.4	42.9	56.2	30.7
Non-U.S. degree	24,900	84.4	90.4	78.3	75.6	44.8	13.8	9.6	78.5	36.6	50.8	38.1
Field of doctoral degree												
Science and engineering	112,600	77.3	91.1	80.3	73.6	66.9	17.5	9.9	79.5	45.1	60.8	37.3
Biological, agricultural, and environmental life sciences	28,900	74.8	89.2	76.4	78.4	54.3	14.8	7.2	83.0	42.3	59.9	43.4
Agricultural and environmental life sciences	3,900	83.2	91.2	85.4	80.3	71.8	21.7	12.1	86.5	54.9	69.5	48.9
Biological and biomedical sciences	24,900	73.5	88.9	75.0	78.1	51.6	13.7	6.5	82.5	40.3	58.4	42.5
Engineering	17,200	92.3	91.6	87.7	79.5	62.7	20.7	17.9	85.6	53.0	64.6	44.1
Mathematics and computer sciences	12,100	81.6	94.5	84.3	67.3	81.6	20.9	10.3	78.8	47.7	63.9	34.1
Computer and information sciences	5,900	85.6	93.3	90.6	77.4	76.0	23.3	19.1	84.9	53.2	66.3	41.0
Mathematics and statistics	6,200	77.8	95.6	78.4	57.8	86.9	18.6	2.1	73.0	42.6	61.7	27.6
Multidisciplinary fields and science and engineering related fields	2,600	65.9	96.4	79.6	75.9	74.6	26.5	10.2	77.8	51.6	66.4	45.1
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	81.7	88.6	73.6	73.2	48.2	9.5	9.7	80.6	39.8	54.2	38.4
Psychology and social sciences	31,200	67.7	92.4	82.8	68.3	86.9	21.3	7.8	72.6	45.3	62.1	27.9
Psychology	8,700	57.9	89.9	77.9	74.5	76.7	26.4	9.2	75.5	42.2	60.9	33.0
Social sciences	22,400	71.5	93.4	84.7	65.9	90.9	19.4	7.3	71.5	46.6	62.6	25.9

TABLE 4-1

Scholarly activity of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Wrote technical reports or working papers	Attended professional conferences	Served as a reviewer for conference, journal or organization	Supervised graduate students, postdoctoral scholars, or staff	Taught courses	Provided clinical or professional services	Developed marketable products	Worked with researchers outside home department or lab	Served as principal or coinvestigator on funded grants	Prepared proposals as principal or co-investigator	Prepared proposals in role other than principal or co-investigator
Health	13,400	63.8	90.7	73.4	75.9	86.2	58.5	10.3	66.7	49.5	55.6	32.4
Non-science and engineering	60,700	56.9	90.5	72.0	66.9	92.3	30.7	12.7	60.3	34.8	45.5	21.1
Education	21,100	57.4	85.6	62.7	75.5	87.7	42.0	18.2	52.9	37.3	41.9	25.1
Humanities	15,700	41.4	91.9	70.2	57.0	93.6	15.9	7.8	53.3	25.3	44.6	18.9
Other non-science and engineering	23,900	66.7	93.9	81.4	65.7	95.6	30.6	11.1	71.4	39.0	49.3	19.1
Position tenure												
1 year or less	25,700	58.0	79.4	60.3	55.0	79.9	22.7	7.2	59.1	26.7	42.3	19.6
More than 1 year but less than 5 years	108,600	72.9	91.2	77.9	72.6	69.2	22.1	10.6	74.3	39.9	54.5	33.4
5 years or more	52,400	68.7	95.9	83.7	77.6	90.2	31.1	13.0	74.8	54.0	63.8	34.1

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 5-1

Work-life balance of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Able to manage demands of position			Work schedule allowed maintenance of desired quality of life			Supervisor understood relationship between personal and professional responsibilities			Demands at home have slowed progress of professional activities		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
All early career doctorates	186,700	9.6	5.6	84.8	21.2	8.9	69.9	10.2	22.3	67.5	34.1	21.4	44.5
Position type[a]													
Faculty	125,600	10.5	5.2	84.3	22.7	9.0	68.3	11.0	26.2	62.8	30.8	20.9	48.3
Tenured faculty	27,300	10.1	5.5	84.4	22.1	7.5	70.3	11.8	24.2	64.0	28.3	18.3	53.4
Tenure-track faculty	58,500	12.4	6.8	80.8	26.2	10.6	63.3	11.2	27.5	61.3	27.1	20.3	52.6
Non-tenure track faculty with rank	13,000	11.0	3.0	86.0	20.0	8.2	71.8	8.4	19.1	72.5	33.9	23.0	43.1
Other faculty, no rank or tenure	26,800	6.6	2.5	90.8	17.2	7.3	75.6	11.1	28.7	60.2	39.9	23.8	36.3
Postdoctoral scholar	36,400	8.1	6.8	85.1	18.6	9.7	71.7	8.7	14.0	77.3	38.6	23.1	38.3
Research scientist or nonfaculty researcher	10,900	6.0	8.0	86.0	13.6	9.7	76.7	7.6	14.1	78.3	40.6	26.3	33.1
Other positions	13,800	7.9	3.8	88.3	20.0	5.4	74.6	8.9	15.0	76.1	47.5	17.3	35.3
Employment setting													
Academic institution[b]	178,900	9.7	5.6	84.7	21.6	8.8	69.6	10.5	22.7	66.9	33.8	21.2	45.0
Very high research activity university	83,000	10.2	5.9	83.9	22.3	9.2	68.5	10.1	23.0	66.9	34.7	21.3	44.0
High research activity university	27,500	10.2	5.6	84.2	22.4	9.6	68.0	11.1	25.0	63.9	33.7	19.5	46.8
Other college or university	68,500	8.8	5.2	86.0	20.3	8.1	71.6	10.7	21.3	68.0	32.7	21.8	45.5
FFRDC	7,800	7.4	5.8	86.8	12.7	10.5	76.8	4.6	13.2	82.2	41.6	25.1	33.3
Doctoral degree type													
Professional degree or doctoral equivalent[c]	15,700	5.5	3.3	91.2	17.4	5.5	77.1	10.2	20.9	68.9	43.8	23.9	32.3
Research degree	171,100	10.0	5.8	84.2	21.5	9.2	69.3	10.2	22.4	67.4	33.2	21.2	45.6
Years since doctoral degree													
1 year or less	36,900	9.1	6.2	84.7	19.4	9.4	71.1	9.5	20.4	70.1	42.4	24.3	33.3
2–5 years	82,800	9.2	4.7	86.1	21.1	7.7	71.2	10.2	20.8	69.0	33.7	20.8	45.5
6–10 years	67,000	10.3	6.3	83.4	22.3	10.1	67.7	10.6	25.1	64.2	30.1	20.5	49.4
Origin of doctoral degree													
U.S. degree	161,800	9.6	5.3	85.1	21.0	8.5	70.5	10.4	22.6	67.0	33.7	21.2	45.2
Non-U.S. degree	24,900	9.2	7.6	83.2	22.2	11.7	66.1	9.2	20.0	70.8	36.9	22.9	40.2

TABLE 5-1

Work-life balance of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Able to manage demands of position			Work schedule allowed maintenance of desired quality of life			Supervisor understood relationship between personal and professional responsibilities			Demands at home have slowed progress of professional activities		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
Field of doctoral degree													
Science and engineering	112,600	10.0	6.7	83.4	21.5	10.0	68.6	9.3	21.5	69.2	33.4	21.3	45.3
Biological, agricultural, and environmental life sciences	28,900	9.2	6.8	84.0	24.2	9.6	66.2	11.4	17.0	71.6	32.4	22.5	45.1
Agricultural and environmental life sciences	3,900	11.6	4.1	84.4	21.8	10.0	68.2	10.6	16.1	73.3	37.4	30.1	32.5
Biological and biomedical sciences	24,900	8.9	7.2	83.9	24.6	9.5	65.9	11.5	17.1	71.3	31.6	21.4	47.1
Engineering	17,200	9.0	6.1	84.9	19.9	11.4	68.6	8.6	21.9	69.6	35.9	23.2	40.9
Mathematics and computer sciences	12,100	8.7	6.3	85.1	17.2	8.1	74.7	6.5	18.9	74.6	30.1	23.9	46.0
Computer and information sciences	5,900	13.5	4.0	82.5	24.0	7.7	68.2	8.8	20.8	70.4	29.4	26.7	43.9
Mathematics and statistics	6,200	4.1	S	87.5	10.8	8.4	80.7	4.3	17.2	78.4	30.8	21.2	47.9
Multidisciplinary fields and science and engineering related fields	2,600	9.3	D	87.8	15.4	13.4	71.2	6.1	18.1	75.8	38.1	15.7	46.2
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	9.4	8.4	82.2	20.7	11.1	68.2	9.3	21.7	69.0	36.8	23.9	39.4
Psychology and social sciences	31,200	12.2	6.2	81.6	22.4	9.2	68.5	9.3	26.4	64.3	31.5	17.0	51.5
Psychology	8,700	10.0	5.5	84.5	19.0	6.5	74.5	10.2	26.6	63.2	36.4	15.7	47.9
Social sciences	22,400	13.0	6.5	80.5	23.7	10.2	66.2	8.9	26.4	64.8	29.5	17.5	52.9
Health	13,400	8.3	3.4	88.3	21.6	5.5	72.9	15.0	20.5	64.5	38.1	23.2	38.7
Non-science and engineering	60,700	9.1	4.1	86.8	20.6	7.7	71.7	10.8	24.2	65.0	34.7	21.1	44.3
Education	21,100	6.9	4.1	89.0	17.5	6.3	76.3	9.5	20.6	69.9	41.0	21.6	37.4
Humanities	15,700	9.7	3.7	86.6	21.8	9.1	69.0	10.7	27.2	62.1	29.4	18.1	52.5
Other non-science and engineering	23,900	10.7	4.4	85.0	22.6	7.9	69.5	11.9	25.4	62.7	32.5	22.6	44.9
Position tenure													
1 year or less	25,700	8.3	5.1	86.6	18.7	9.5	71.8	8.2	27.4	64.4	41.3	21.4	37.4

TABLE 5-1

Work-life balance of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Able to manage demands of position			Work schedule allowed maintenance of desired quality of life			Supervisor understood relationship between personal and professional responsibilities			Demands at home have slowed progress of professional activities		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
More than 1 year but less than 5 years	108,600	10.0	5.7	84.3	21.7	9.0	69.3	10.5	21.1	68.4	34.6	22.2	43.2
5 years or more	52,400	9.3	5.6	85.1	21.3	8.4	70.3	10.6	22.2	67.2	29.6	19.7	50.7

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 5-2

Work-life balance of early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Able to manage demands of position			Work schedule allowed maintenance of desired quality of life			Supervisor understood relationship between personal and professional responsibilities			Demands at home have slowed progress of professional activities		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
All early career doctorates	186,700	9.6	5.6	84.8	21.2	8.9	69.9	10.2	22.3	67.5	34.1	21.4	44.5
Sex													
Female	89,400	11.5	5.4	83.1	23.4	8.3	68.3	11.2	23.9	64.9	34.7	21.8	43.5
Male	97,300	7.8	5.8	86.4	19.2	9.5	71.4	9.3	20.8	69.9	33.6	21.0	45.4
Citizenship and sex													
U.S. citizen or permanent resident	156,100	9.6	5.3	85.1	21.4	8.3	70.3	10.6	23.0	66.4	33.2	20.5	46.2
Female	79,900	11.7	5.0	83.3	23.7	7.8	68.4	11.6	24.1	64.3	33.6	20.8	45.6
Male	76,300	7.4	5.5	87.1	18.9	8.9	72.2	9.6	21.8	68.6	32.8	20.3	47.0
Temporary visa holder	30,600	9.4	7.4	83.2	20.2	11.7	68.1	8.2	18.8	73.1	38.7	25.7	35.6
Female	9,600	10.2	8.3	81.5	20.3	12.2	67.5	8.2	22.2	69.6	43.1	30.7	26.2
Male	21,000	9.1	6.9	84.0	20.1	11.5	68.4	8.2	17.2	74.6	36.7	23.5	39.8
Ethnicity and race													
Hispanic or Latino	13,600	10.6	6.7	82.8	24.6	9.0	66.4	12.4	21.5	66.1	30.4	24.9	44.7
Not Hispanic or Latino													
Asian	37,600	8.0	7.7	84.3	18.0	10.2	71.8	7.8	20.5	71.7	31.5	26.9	41.6
Black or African American	10,100	9.4	1.9	88.6	19.6	8.3	72.1	10.0	28.8	61.2	49.7	17.9	32.3
White	120,800	9.8	5.0	85.2	21.8	8.5	69.7	10.6	22.1	67.2	33.8	19.5	46.7
Other race and ethnicity	4,700	14.2	8.2	77.6	24.4	9.5	66.2	13.1	28.3	58.5	39.4	23.3	37.3
Age quartile													
32 years and under	38,400	7.6	6.7	85.7	18.4	9.6	72.0	9.5	17.6	72.9	41.4	23.3	35.3
33–35 year	51,100	10.4	5.0	84.6	21.4	8.2	70.4	9.7	22.3	68.0	29.5	20.2	50.3
36–40 years	41,900	9.6	6.7	83.7	21.2	10.5	68.4	10.2	22.5	67.2	28.6	19.6	51.8
41 years or older	55,300	10.2	4.6	85.2	22.9	7.8	69.3	11.2	25.3	63.5	37.5	22.5	40.0
Marital status													
Never married	29,500	10.5	9.1	80.4	27.6	10.4	62.0	11.1	27.5	61.4	48.2	26.8	24.9
Married	135,400	9.1	5.1	85.8	19.4	8.3	72.2	9.5	20.5	70.0	30.2	19.8	50.0
Marriage-like relationship	11,500	12.0	4.9	83.1	24.9	11.8	63.3	14.5	27.8	57.8	39.9	25.7	34.4
Separated, divorced, widowed	10,300	10.6	3.1	86.3	21.9	8.4	69.7	12.3	24.1	63.6	38.2	22.2	39.5

TABLE 5-2

Work-life balance of early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Able to manage demands of position			Work schedule allowed maintenance of desired quality of life			Supervisor understood relationship between personal and professional responsibilities			Demands at home have slowed progress of professional activities		
		Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree	Disagree	Neither agree nor disagree	Agree
Dependents													
With dependents	96,800	9.6	5.3	85.1	18.5	8.5	73.0	9.6	19.3	71.1	23.1	16.9	60.0
Without dependents	90,000	9.6	5.9	84.5	24.0	9.3	66.7	10.9	25.4	63.7	46.0	26.2	27.9
Disability status													
With disability	51,700	13.9	6.6	79.5	27.5	10.6	61.9	12.8	23.1	64.1	30.8	20.6	48.7
Without disability	135,000	7.9	5.2	86.9	18.8	8.2	73.0	9.2	21.9	68.8	35.4	21.7	42.9

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 6-1

Median salary of early career doctorates, by doctoral degree characteristics and position type: 2017

(Dollars)

Selected characteristic	All position types	Faculty					Postdoctoral scholar[b]	Other position		
		Total	Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[a]		Total	Research scientist or nonfaculty researcher	All other positions[c]
All early career doctorates	68,000	73,000	80,000	78,000	73,000	45,000	50,000	80,000	80,000	80,000
Doctoral degree type										
Professional degree or doctoral equivalent[d]	69,000	65,000	77,000	74,000	82,000	12,000	48,000	84,000	93,000	83,000
Research degree	68,000	74,000	80,000	79,000	71,000	47,000	50,000	80,000	80,000	79,000
Years since doctoral degree										
1 year or less	55,000	65,000	74,000	75,000	61,000	40,000	49,000	74,000	94,000	67,000
2–5 years	65,000	72,000	72,000	78,000	75,000	43,000	51,000	75,000	81,000	73,000
6–10 years	78,000	78,000	82,000	81,000	76,000	48,000	53,000	84,000	78,000	88,000
Origin of doctoral degree										
U.S. degree	70,000	73,000	80,000	78,000	74,000	45,000	50,000	82,000	85,000	80,000
Non-U.S. degree	56,000	80,000	94,000	82,000	65,000	51,000	50,000	71,000	67,000	83,000
Field of doctoral degree										
Science and engineering	67,000	78,000	85,000	81,000	70,000	50,000	50,000	82,000	82,000	82,000
Biological, agricultural, and environmental life sciences	55,000	74,000	79,000	79,000	77,000	49,000	49,000	61,000	59,000	72,000
Agricultural and environmental life sciences	59,000	73,000	86,000	73,000	D	S	50,000	61,000	61,000	61,000
Biological and biomedical sciences	55,000	74,000	75,000	80,000	77,000	50,000	48,000	61,000	59,000	79,000
Engineering	82,000	90,000	98,000	91,000	86,000	62,000	50,000	110,000	110,000	108,000
Mathematics and computer sciences	80,000	83,000	85,000	89,000	65,000	63,000	56,000	123,000	128,000	S
Computer and information sciences	94,000	97,000	100,000	98,000	79,000	S	58,000	144,000	141,000	S
Mathematics and statistics	69,000	75,000	75,000	79,000	65,000	63,000	56,000	83,000	98,000	S
Multidisciplinary fields and science and engineering related fields	69,000	78,000	78,000	85,000	S	42,000	56,000	89,000	D	81,000
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	63,000	73,000	88,000	81,000	69,000	51,000	52,000	89,000	88,000	97,000
Psychology and social sciences	70,000	73,000	80,000	76,000	68,000	45,000	49,000	70,000	69,000	70,000
Psychology	68,000	72,000	82,000	79,000	70,000	31,000	48,000	64,000	67,000	64,000
Social sciences	71,000	73,000	80,000	75,000	65,000	48,000	48,000	77,000	70,000	81,000

TABLE 6-1

Median salary of early career doctorates, by doctoral degree characteristics and position type: 2017

(Dollars)

Selected characteristic	All position types	Faculty					Postdoctoral scholar[b]	Other position		
		Total	Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[a]		Total	Research scientist or nonfaculty researcher	All other positions[c]
Health	77,000	80,000	79,000	78,000	84,000	S	48,000	75,000	59,000	76,000
Non-science and engineering	68,000	67,000	76,000	72,000	67,000	39,000	52,000	77,000	66,000	80,000
Education	64,000	61,000	70,000	68,000	66,000	12,000	53,000	80,000	63,000	81,000
Humanities	62,000	62,000	72,000	66,000	S	45,000	53,000	65,000	62,000	67,000
Other non-science and engineering	77,000	77,000	81,000	83,000	82,000	47,000	49,000	87,000	90,000	86,000

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts.

[b] Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research.

[c] All other positions are diverse but are typically university administrators and staff.

[d] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Median salaries are rounded to the nearest $1,000. Includes early career doctorates who reported a salary of $0.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 6-2

Median salary of early career doctorates, by employment setting, position characteristics, and position type: 2017

(Dollars)

Selected characteristic	All position types	Faculty					Postdoctoral scholar[b]	Other position		
		Total	Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[a]		Total	Research scientist or nonfaculty researcher	All other positions[c]
All early career doctorates	68,000	73,000	80,000	78,000	73,000	45,000	50,000	80,000	80,000	80,000
Employment setting										
Academic institution[d]	67,000	73,000	80,000	78,000	73,000	45,000	50,000	73,000	64,000	80,000
Very high research activity university	65,000	83,000	93,000	89,000	78,000	51,000	50,000	70,000	64,000	76,000
High research activity university	68,000	71,000	82,000	73,000	70,000	44,000	48,000	68,000	57,000	71,000
Other college or university	68,000	68,000	74,000	71,000	67,000	35,000	48,000	83,000	65,000	84,000
FFRDC	97,000	102,000	D	101,000	98,000	D	68,000	118,000	117,000	143,000
Position tenure										
1 year or less	60,000	65,000	91,000	73,000	69,000	30,000	49,000	67,000	66,000	68,000
More than 1 year but less than 5 years	65,000	74,000	82,000	80,000	73,000	48,000	50,000	75,000	73,000	76,000
5 years or more	76,000	75,000	80,000	79,000	74,000	48,000	52,000	92,000	117,000	84,000
First-position status										
First position held after doctoral award	65,000	72,000	80,000	78,000	75,000	41,000	50,000	84,000	98,000	79,000
Not the first position	71,000	74,000	82,000	79,000	72,000	48,000	51,000	78,000	74,000	81,000
Position related to doctoral degree										
Closely	70,000	75,000	80,000	78,000	73,000	45,000	50,000	82,000	79,000	83,000
Somewhat	59,000	64,000	84,000	78,000	73,000	46,000	50,000	76,000	81,000	71,000
Not at all	55,000	47,000	D	81,000	54,000	S	49,000	83,000	80,000	83,000
Hours worked per week										
Less than 35 hours	17,000	17,000	67,000	70,000	75,000	13,000	46,000	26,000	S	31,000
35–44 hours	66,000	72,000	79,000	78,000	69,000	51,000	50,000	76,000	80,000	71,000
45–54 hours	72,000	76,000	80,000	78,000	75,000	56,000	50,000	88,000	91,000	85,000
55 hours or more	74,000	79,000	82,000	80,000	78,000	55,000	50,000	93,000	83,000	95,000

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts.

[b] Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research.

[c] All other positions are diverse but are typically university administrators and staff.

[d] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

Note(s):
Median salaries are rounded to the nearest $1,000. Includes early career doctorates who reported a salary of $0.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 6-3

Median salary of early career doctorates, by demographic characteristics and position type: 2017

(Dollars)

Selected characteristic	All position types	Faculty					Postdoctoral scholar[b]	Other position		
		Total	Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[a]		Total	Research scientist or nonfaculty researcher	All other positions[c]
All early career doctorates	68,000	73,000	80,000	78,000	73,000	45,000	50,000	80,000	80,000	80,000
Sex										
Female	67,000	70,000	76,000	75,000	74,000	45,000	50,000	73,000	64,000	76,000
Male	69,000	77,000	83,000	80,000	73,000	44,000	50,000	88,000	88,000	87,000
Citizenship and sex										
U.S. citizen or permanent resident	70,000	72,000	80,000	78,000	73,000	44,000	50,000	82,000	85,000	80,000
Female	68,000	70,000	75,000	75,000	75,000	45,000	50,000	75,000	65,000	76,000
Male	73,000	76,000	83,000	80,000	72,000	44,000	51,000	91,000	93,000	88,000
Temporary visa holder	55,000	79,000	80,000	83,000	67,000	50,000	50,000	66,000	67,000	64,000
Female	55,000	75,000	81,000	80,000	64,000	52,000	49,000	61,000	61,000	D
Male	55,000	80,000	79,000	84,000	73,000	50,000	50,000	72,000	72,000	76,000
Ethnicity and race										
Hispanic or Latino	66,000	72,000	80,000	78,000	67,000	35,000	50,000	77,000	71,000	77,000
Not Hispanic or Latino										
Asian	65,000	82,000	91,000	86,000	70,000	45,000	50,000	70,000	73,000	62,000
Black or African American	70,000	69,000	79,000	76,000	72,000	S	50,000	88,000	74,000	89,000
White	69,000	72,000	80,000	76,000	74,000	46,000	50,000	82,000	84,000	81,000
Other race and ethnicity	66,000	68,000	81,000	72,000	64,000	26,000	49,000	84,000	58,000	97,000
Age quartile										
32 years and under	57,000	75,000	79,000	80,000	75,000	49,000	50,000	71,000	84,000	55,000
33–35 year	69,000	76,000	79,000	80,000	73,000	48,000	50,000	75,000	83,000	69,000
36–40 years	73,000	75,000	83,000	79,000	72,000	48,000	52,000	80,000	80,000	79,000
41 years or older	70,000	69,000	79,000	72,000	74,000	36,000	49,000	86,000	70,000	89,000
Marital status										
Never married	61,000	71,000	77,000	75,000	62,000	50,000	50,000	70,000	68,000	73,000
Married	70,000	74,000	82,000	80,000	74,000	43,000	50,000	83,000	82,000	83,000
Marriage-like relationship	63,000	69,000	81,000	75,000	76,000	45,000	50,000	75,000	60,000	74,000
Separated, divorced, widowed	67,000	70,000	82,000	78,000	83,000	43,000	51,000	86,000	S	80,000
Dependents										
With dependents	72,000	75,000	82,000	80,000	73,000	45,000	51,000	82,000	84,000	80,000
Without dependents	63,000	72,000	78,000	78,000	72,000	45,000	50,000	79,000	74,000	80,000
Disability status										

TABLE 6-3

Median salary of early career doctorates, by demographic characteristics and position type: 2017

(Dollars)

Selected characteristic	All position types	Faculty					Postdoctoral scholar[b]	Other position		
		Total	Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[a]		Total	Research scientist or nonfaculty researcher	All other positions[c]
With disability	66,000	70,000	79,000	75,000	73,000	44,000	50,000	76,000	85,000	74,000
Without disability	69,000	75,000	81,000	80,000	73,000	45,000	50,000	81,000	79,000	83,000

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts.

[b] Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research.

[c] All other positions are diverse but are typically university administrators and staff.

Note(s):
Median salaries are rounded to the nearest $1,000. Includes early career doctorates who reported a salary of $0.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 6-4

Benefits available to early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Health insurance	Dental insurance	Vision insurance	Retirement plan or pension	Life insurance	Paid sick days	Paid vacation days	Paternity or maternity leave	Tuition reimbursement	Childcare subsidy	None of these
All early career doctorates	186,700	93.0	89.8	85.6	84.3	82.1	64.6	53.8	57.2	46.7	15.9	2.8
Position type[a]												
Faculty	125,600	91.8	90.2	86.4	89.7	85.3	57.1	40.9	58.8	51.3	16.1	3.6
Tenured faculty	27,300	99.5	97.9	93.5	98.6	92.4	62.6	45.1	71.4	60.9	16.3	D
Tenure-track faculty	58,500	99.0	98.0	93.9	97.4	93.2	59.8	41.7	68.2	52.0	18.3	D
Non-tenure track faculty with rank	13,000	97.8	96.2	90.6	95.5	91.9	74.3	64.7	51.4	62.7	21.2	S
Other faculty, no rank or tenure	26,800	65.1	62.7	60.6	61.0	57.7	37.4	23.4	28.9	34.6	8.6	16.2
Postdoctoral scholar	36,400	96.6	87.1	80.7	60.5	67.0	75.7	76.3	44.1	19.9	13.6	0.8
Research scientist or nonfaculty researcher	10,900	91.8	88.6	85.5	89.3	82.8	86.4	88.8	64.3	45.5	19.7	2.9
Other positions	13,800	95.1	94.1	92.3	94.2	92.4	86.1	84.7	71.7	76.9	17.6	D
Employment setting												
Academic institution[b]	178,900	92.7	89.5	85.3	84.2	81.9	63.4	51.9	56.6	47.2	15.9	2.9
Very high research activity university	83,000	94.4	89.7	85.0	79.5	79.1	67.2	60.8	56.3	37.5	18.1	2.0
High research activity university	27,500	92.4	90.1	85.0	89.4	84.7	63.8	44.7	56.2	58.1	13.7	3.8
Other college or university	68,500	90.8	89.0	85.9	87.7	84.3	58.6	44.1	57.0	54.5	14.0	3.6
FFRDC	7,800	98.3	97.2	93.0	87.8	87.3	92.5	97.4	71.2	36.4	17.8	D
Doctoral degree type												
Professional degree or doctoral equivalent[c]	15,700	79.3	77.7	74.7	79.4	76.6	63.2	58.5	47.6	58.2	13.1	7.2
Research degree	171,100	94.2	90.9	86.6	84.8	82.6	64.7	53.4	58.1	45.7	16.2	2.4
Years since doctoral degree												
1 year or less	36,900	92.7	87.2	83.1	71.5	74.7	64.2	55.9	47.6	39.4	14.1	2.6
2–5 years	82,800	92.8	89.5	85.3	84.2	81.4	65.2	54.4	56.9	45.7	15.8	3.1
6–10 years	67,000	93.3	91.6	87.5	91.6	87.2	64.1	52.0	62.8	52.0	17.0	2.4
Origin of doctoral degree												
U.S. degree	161,800	93.0	90.6	86.6	86.6	84.0	63.5	51.6	58.4	49.9	16.0	2.9
Non-U.S. degree	24,900	92.9	84.8	79.6	69.5	69.8	71.8	68.2	49.2	25.8	15.4	2.0
Field of doctoral degree												
Science and engineering	112,600	94.8	90.6	86.0	82.4	81.2	68.8	59.9	56.7	40.6	16.0	1.9

TABLE 6-4

Benefits available to early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Health insurance	Dental insurance	Vision insurance	Retirement plan or pension	Life insurance	Paid sick days	Paid vacation days	Paternity or maternity leave	Tuition reimbursement	Childcare subsidy	None of these
Biological, agricultural, and environmental life sciences	28,900	95.8	90.0	84.5	76.4	77.8	77.8	71.9	53.7	33.8	14.6	1.7
Agricultural and environmental life sciences	3,900	93.6	88.0	81.7	73.3	77.6	79.7	67.6	55.0	34.2	12.5	D
Biological and biomedical sciences	24,900	96.1	90.3	85.0	76.9	77.8	77.5	72.6	53.5	33.7	15.0	1.2
Engineering	17,200	96.0	89.9	86.9	85.8	82.5	71.7	63.0	57.5	45.3	19.3	1.1
Mathematics and computer sciences	12,100	95.0	91.8	86.4	87.7	82.2	62.9	49.6	54.2	46.9	15.9	S
Computer and information sciences	5,900	92.1	89.1	84.9	87.1	79.1	69.0	56.6	55.1	49.6	16.9	S
Mathematics and statistics	6,200	97.8	94.3	87.8	88.2	85.2	57.1	42.9	53.4	44.4	15.0	D
Multidisciplinary fields and science and engineering related fields	2,600	86.0	82.8	79.2	82.8	75.6	69.6	62.9	61.6	41.5	12.3	D
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	96.3	91.5	85.7	75.8	78.7	73.1	69.5	52.6	30.5	14.1	S
Psychology and social sciences	31,200	92.9	91.1	87.3	88.2	85.3	58.4	44.4	62.4	48.6	16.8	3.3
Psychology	8,700	90.9	88.9	85.3	86.7	82.8	64.9	53.6	62.7	49.5	20.5	3.8
Social sciences	22,400	93.7	92.0	88.1	88.8	86.2	55.8	40.8	62.3	48.3	15.4	3.0
Health	13,400	92.2	89.9	86.7	88.4	85.3	65.4	55.8	58.0	54.5	18.9	4.2
Non-science and engineering	60,700	89.8	88.3	84.8	87.0	83.2	56.7	42.2	57.9	56.3	15.2	4.0
Education	21,100	82.2	81.3	78.3	81.2	77.2	60.5	49.7	52.5	58.3	14.8	7.0
Humanities	15,700	94.4	92.7	88.5	90.1	84.8	54.3	37.0	59.0	54.1	15.4	3.0
Other non-science and engineering	23,900	93.4	91.6	88.1	90.1	87.5	54.8	39.0	61.9	55.9	15.5	2.0
Position tenure												
1 year or less	25,700	84.8	81.2	77.8	73.1	73.6	55.0	44.5	46.2	41.4	14.6	6.7
More than 1 year but less than 5 years	108,600	93.7	89.9	85.6	82.5	81.3	66.8	58.4	55.3	41.9	16.1	2.4
5 years or more	52,400	95.4	93.9	89.6	93.7	88.1	64.8	48.9	66.4	59.3	16.3	1.5

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[c] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 6-5

Benefits available to early career doctorates, by demographic characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Health insurance	Dental insurance	Vision insurance	Retirement plan or pension	Life insurance	Paid sick days	Paid vacation days	Paternity or maternity leave	Tuition reimbursement	Childcare subsidy	None of these
All early career doctorates	186,700	93.0	89.8	85.6	84.3	82.1	64.6	53.8	57.2	46.7	15.9	2.8
Sex												
Female	89,400	92.4	90.0	86.0	85.4	83.5	63.3	50.6	60.6	48.8	16.1	2.9
Male	97,300	93.5	89.6	85.3	83.3	80.9	65.8	56.8	54.1	44.8	15.8	2.6
Citizenship and sex												
U.S. citizen or permanent resident	156,100	92.6	90.7	87.0	87.5	84.5	63.1	51.3	59.3	50.6	15.8	3.1
Female	79,900	92.2	90.7	86.9	87.4	85.1	62.0	48.9	61.6	51.1	16.1	3.2
Male	76,300	93.0	90.8	87.1	87.6	84.0	64.3	53.8	56.9	50.0	15.5	3.1
Temporary visa holder	30,600	94.9	85.0	78.7	68.2	69.9	72.4	66.9	46.3	27.1	16.6	0.8
Female	9,600	94.4	84.5	78.5	69.5	70.1	74.0	65.4	51.9	29.4	15.8	0.9
Male	21,000	95.2	85.2	78.8	67.6	69.8	71.6	67.6	43.7	26.0	16.9	0.7
Ethnicity and race												
Hispanic or Latino	13,600	92.7	89.1	86.5	79.5	80.3	67.6	53.2	56.4	37.4	15.3	2.8
Not Hispanic or Latino												
Asian	37,600	94.8	87.0	82.7	79.5	78.0	72.3	62.9	56.6	39.3	21.4	1.3
Black or African American	10,100	85.9	84.9	79.5	81.7	79.0	64.4	53.4	55.6	53.1	17.0	5.2
White	120,800	93.2	91.3	87.1	86.6	84.0	62.4	51.8	57.7	49.8	14.1	2.9
Other race and ethnicity	4,700	88.3	87.2	83.6	83.7	77.8	50.2	37.5	55.2	40.2	18.0	5.5
Age quartile												
32 years and under	38,400	96.3	90.0	84.5	73.8	76.0	69.6	63.4	52.7	35.2	15.0	1.0
33–35 year	51,100	95.2	91.8	87.5	85.3	83.6	65.3	54.3	61.8	43.6	16.8	2.0
36–40 years	41,900	95.1	93.2	89.2	91.8	87.5	63.7	50.9	64.3	49.8	18.7	1.8
41 years or older	55,300	87.0	85.2	82.0	85.0	81.0	61.2	49.1	50.6	55.2	13.6	5.4
Marital status												
Never married	29,500	95.7	90.6	85.5	79.0	76.2	64.4	56.1	46.8	37.9	11.6	1.2
Married	135,400	92.6	89.9	86.0	85.7	83.8	64.9	53.7	60.0	49.1	17.0	3.0
Marriage-like relationship	11,500	95.2	89.7	84.8	85.5	80.7	64.3	52.4	57.3	38.7	15.1	S
Separated, divorced, widowed	10,300	87.5	86.0	81.9	79.6	78.4	61.6	51.0	50.4	50.0	15.0	6.7
Dependents												

TABLE 6-5

Benefits available to early career doctorates, by demographic characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Health insurance	Dental insurance	Vision insurance	Retirement plan or pension	Life insurance	Paid sick days	Paid vacation days	Paternity or maternity leave	Tuition reimbursement	Childcare subsidy	None of these
With dependents	96,800	93.1	90.7	86.6	88.3	85.4	64.5	52.8	62.7	51.7	19.9	2.6
Without dependents	90,000	92.8	88.8	84.6	80.0	78.6	64.7	55.0	51.3	41.3	11.7	2.9
Disability status												
With disability	51,700	92.3	89.3	86.0	84.3	80.9	61.6	50.5	55.5	47.5	14.1	3.8
Without disability	135,000	93.2	90.0	85.5	84.3	82.6	65.8	55.1	57.8	46.4	16.6	2.4

S = suppressed for reliability; coefficient of variation exceeds publication standards.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 6-6

Scholarly productivity of early career doctorates, by doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Published papers in conference proceedings	Authored or co-authored conference papers	Submitted articles for publication in a peer-reviewed journal	Published books or book chapters	Mentored or supervised students	Taught courses	Named as an inventor on a patent application	Provided service to department, institution, or professional society
All early career doctorates	186,700	56.1	82.6	87.4	39.2	89.2	82.5	7.6	90.3
Doctoral degree type									
Professional degree or doctoral equivalent[a]	15,700	42.7	59.2	58.6	28.4	91.2	89.9	0.9	89.1
Research degree	171,100	57.4	84.7	90.0	40.1	89.0	81.9	8.3	90.4
Years since doctoral degree									
1 year or less	36,900	46.9	73.6	82.8	21.7	82.8	70.6	6.0	83.7
2–5 years	82,800	55.2	82.9	87.2	37.7	89.3	82.2	7.9	90.1
6–10 years	67,000	62.4	87.2	90.2	50.5	92.7	89.6	8.2	94.0
Origin of doctoral degree									
U.S. degree	161,800	54.9	82.7	86.3	39.7	90.4	86.2	6.4	92.0
Non-U.S. degree	24,900	63.9	81.9	94.7	35.8	81.7	58.7	15.3	78.7
Field of doctoral degree									
Science and engineering	112,600	57.6	82.3	91.8	34.1	87.7	74.7	11.8	88.1
Biological, agricultural, and environmental life sciences	28,900	52.6	78.8	94.9	26.4	89.1	66.8	10.9	83.2
Agricultural and environmental life sciences	3,900	66.0	91.9	95.2	40.8	93.2	77.5	7.5	92.0
Biological and biomedical sciences	24,900	50.5	76.8	94.9	24.1	88.4	65.1	11.5	81.8
Engineering	17,200	78.6	83.1	92.5	27.9	88.7	66.1	29.8	88.2
Mathematics and computer sciences	12,100	67.1	72.8	88.4	28.8	80.4	83.4	12.5	91.8
Computer and information sciences	5,900	92.8	78.9	83.6	38.7	84.0	76.9	24.0	93.0
Mathematics and statistics	6,200	43.0	67.1	93.0	19.6	77.1	89.5	1.7	90.7
Multidisciplinary fields and science and engineering related fields	2,600	74.2	86.0	92.1	52.6	87.7	79.8	6.7	87.6
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	58.1	78.5	92.0	18.7	84.7	61.5	15.9	83.8

TABLE 6-6

Scholarly productivity of early career doctorates, by doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Published papers in conference proceedings	Authored or co-authored conference papers	Submitted articles for publication in a peer-reviewed journal	Published books or book chapters	Mentored or supervised students	Taught courses	Named as an inventor on a patent application	Provided service to department, institution, or professional society
Psychology and social sciences	31,200	45.2	90.9	89.8	55.3	90.8	91.7	0.3	94.1
Psychology	8,700	48.0	85.7	86.9	52.9	92.8	83.8	D	91.6
Social sciences	22,400	44.1	92.9	90.9	56.3	90.0	94.8	D	95.1
Health	13,400	61.0	81.9	86.0	33.2	93.9	91.1	3.1	90.9
Non-science and engineering	60,700	52.3	83.3	79.5	49.9	91.0	95.2	0.8	94.1
Education	21,100	51.8	71.7	68.2	42.6	91.8	91.7	0.6	91.5
Humanities	15,700	39.9	89.1	84.2	62.5	90.2	97.4	D	95.3
Other non-science and engineering	23,900	61.0	89.8	86.3	47.9	90.8	96.9	1.5	95.5

D = suppressed to avoid disclosure of confidential information.

[a] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 6-7

Scholarly productivity of early career doctorates, by position type, employment setting, and position characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Published papers in conference proceedings	Authored or co-authored conference papers	Submitted articles for publication in a peer-reviewed journal	Published books or book chapters	Mentored or supervised students	Taught courses	Named as an inventor on a patent application	Provided service to department, institution, or professional society
All early career doctorates	186,700	56.1	82.6	87.4	39.2	89.2	82.5	7.6	90.3
Position type[a]									
Faculty	125,600	57.2	85.8	88.1	46.6	92.4	96.3	5.6	94.7
Tenured faculty	27,300	70.0	95.5	96.3	62.7	96.5	98.0	5.6	98.1
Tenure-track faculty	58,500	59.8	91.6	96.2	47.7	94.2	96.4	7.0	97.2
Non-tenure track faculty with rank	13,000	58.2	81.1	84.8	39.2	90.8	89.8	6.0	95.2
Other faculty, no rank or tenure	26,800	38.2	65.6	63.7	31.1	84.9	97.6	2.4	85.7
Postdoctoral scholar	36,400	52.9	77.7	94.2	20.2	82.3	48.1	13.1	77.5
Research scientist or nonfaculty researcher	10,900	67.6	82.3	90.1	27.9	80.4	50.0	20.0	84.7
Other positions	13,800	45.3	66.1	60.8	30.6	85.7	73.9	2.0	87.8
Employment setting									
Academic institution[b]	178,900	55.4	82.6	87.3	39.9	89.8	84.7	7.1	90.6
Very high research activity university	83,000	56.8	82.8	90.8	36.5	88.6	73.4	10.8	87.7
High research activity university	27,500	55.7	84.3	86.5	45.2	90.1	92.1	6.2	92.6
Other college or university	68,500	53.6	81.7	83.5	41.8	91.1	95.5	2.8	93.2
FFRDC	7,800	72.8	81.9	89.1	22.5	76.0	33.3	21.1	83.2
Position tenure									
1 year or less	25,700	45.8	75.6	82.8	29.3	87.7	85.9	4.4	86.7
More than 1 year but less than 5 years	108,600	56.4	82.2	88.6	35.4	87.9	77.4	9.1	89.1
5 years or more	52,400	60.6	86.8	87.1	51.8	92.7	91.5	6.3	94.4
First-position status									

TABLE 6-7

Scholarly productivity of early career doctorates, by position type, employment setting, and position characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Published papers in conference proceedings	Authored or co-authored conference papers	Submitted articles for publication in a peer-reviewed journal	Published books or book chapters	Mentored or supervised students	Taught courses	Named as an inventor on a patent application	Provided service to department, institution, or professional society
Percentage of early career doctorates in first position	89,500	53.5	79.6	84.3	34.9	86.4	79.0	6.4	87.7
Not the first position	97,300	58.5	85.3	90.3	43.0	91.8	85.8	8.7	92.6
Position related to doctoral degree									
Closely	146,800	57.6	85.0	89.2	41.9	90.2	84.9	7.3	92.1
Somewhat	36,200	52.2	75.1	82.2	30.0	86.8	74.6	9.2	84.5
Not at all	3,700	37.7	60.2	65.9	20.3	72.9	67.6	7.3	73.4
Hours worked per week									
Less than 35 hours	16,300	41.9	65.4	66.2	32.7	84.2	94.5	2.5	80.3
35–44 hours	59,600	56.0	81.5	86.6	34.4	84.3	76.2	7.8	88.3
45–54 hours	62,400	56.1	84.9	89.9	40.2	91.8	82.5	7.1	91.9
55 hours or more	48,500	61.1	86.7	92.3	45.8	93.7	86.4	9.9	93.9

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 6-8

Scholarly productivity of early career doctorates, by demographic characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Published papers in conference proceedings	Authored or co-authored conference papers	Submitted articles for publication in a peer-reviewed journal	Published books or book chapters	Mentored or supervised students	Taught courses	Named as an inventor on a patent application	Provided service to department, institution, or professional society
All early career doctorates	186,700	56.1	82.6	87.4	39.2	89.2	82.5	7.6	90.3
Sex									
Female	89,400	51.2	83.5	85.3	40.5	91.0	87.1	3.7	91.8
Male	97,300	60.6	81.7	89.3	37.9	87.6	78.3	11.3	88.9
Citizenship and sex									
U.S. citizen or permanent resident	156,100	55.1	83.1	86.2	41.7	91.3	87.2	6.5	92.5
Female	79,900	50.4	83.6	84.3	42.4	92.3	90.0	3.1	93.2
Male	76,300	60.0	82.7	88.2	40.9	90.4	84.4	10.2	91.7
Temporary visa holder	30,600	61.3	79.9	93.5	26.4	78.4	58.6	13.2	79.1
Female	9,600	57.7	83.0	93.5	25.0	80.4	63.2	8.7	80.3
Male	21,000	63.0	78.4	93.6	27.0	77.5	56.5	15.3	78.5
Ethnicity and race									
Hispanic or Latino	13,600	55.3	81.4	88.0	43.1	90.4	81.6	6.7	89.3
Not Hispanic or Latino									
Asian	37,600	65.7	83.6	93.0	29.7	81.3	68.1	15.3	82.6
Black or African American	10,100	48.1	78.7	78.0	44.9	88.5	90.1	2.0	89.3
White	120,800	53.9	82.6	86.5	41.0	91.5	86.3	6.0	92.9
Other race and ethnicity	4,700	56.5	86.6	84.7	42.6	91.3	87.1	3.8	89.7
Age quartile									
32 years and under	38,400	51.0	77.4	90.1	24.2	85.0	65.1	11.4	83.7
33–35 year	51,100	55.8	85.7	91.7	37.9	90.5	81.9	9.8	90.4
36–40 years	41,900	59.3	88.2	90.6	48.9	90.8	87.0	7.4	93.0
41 years or older	55,300	57.5	79.1	79.2	43.3	89.8	91.9	3.1	92.6
Marital status									
Never married	29,500	52.4	81.3	89.4	31.3	88.3	74.7	6.7	86.3
Married	135,400	57.3	83.4	87.8	40.2	88.8	83.7	8.1	91.0
Marriage-like relationship	11,500	48.3	80.5	87.1	41.4	94.6	83.5	6.0	89.9
Separated, divorced, widowed	10,300	60.6	77.4	76.5	45.0	92.0	88.6	5.9	92.0
Dependents									
With dependents	96,800	59.2	84.8	87.4	42.8	89.2	86.3	8.1	91.8

TABLE 6-8

Scholarly productivity of early career doctorates, by demographic characteristics: 2017

(Percent)

Selected characteristic	Number of early career doctorates	Published papers in conference proceedings	Authored or co-authored conference papers	Submitted articles for publication in a peer-reviewed journal	Published books or book chapters	Mentored or supervised students	Taught courses	Named as an inventor on a patent application	Provided service to department, institution, or professional society
Without dependents	90,000	52.8	80.2	87.4	35.3	89.3	78.6	7.1	88.6
Disability status									
With disability	51,700	54.9	81.6	84.7	39.9	90.0	86.0	5.8	91.1
Without disability	135,000	56.6	82.9	88.4	38.9	88.9	81.2	8.3	89.9

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-1

Satisfaction with position and early career doctorates who would take position again, by doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Satisfaction with position					Would take position again if starting over
		Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied	
All early career doctorates	186,700	3.6	7.1	12.5	45.4	31.4	78.7
Doctoral degree type							
Professional degree or doctoral equivalent[a]	15,700	3.4	5.7	12.4	41.5	36.9	81.8
Research degree	171,100	3.6	7.2	12.5	45.8	30.9	78.4
Years since doctoral degree							
1 year or less	36,900	3.4	6.5	11.9	44.9	33.4	79.3
2–5 years	82,800	3.6	7.2	12.7	45.3	31.2	78.5
6–10 years	67,000	3.6	7.3	12.6	45.9	30.6	78.6
Origin of doctoral degree							
U.S. degree	161,800	3.5	7.4	12.2	45.4	31.5	79.1
Non-U.S. degree	24,900	4.2	5.3	14.6	45.5	30.4	76.4
Field of doctoral degree							
Science and engineering	112,600	4.0	6.7	12.8	45.1	31.3	77.8
Biological, agricultural, and environmental life sciences	28,900	3.6	7.8	15.5	43.8	29.3	73.2
Agricultural and environmental life sciences	3,900	6.6	4.2	11.9	46.4	30.9	83.8
Biological and biomedical sciences	24,900	3.2	8.3	16.1	43.4	29.0	71.5
Engineering	17,200	4.6	5.1	12.7	48.2	29.4	76.8
Mathematics and computer sciences	12,100	2.8	5.5	9.1	45.8	36.8	79.1
Computer and information sciences	5,900	2.9	6.4	8.9	51.0	30.8	78.3
Mathematics and statistics	6,200	2.8	4.7	9.2	40.8	42.5	79.9
Multidisciplinary fields and science and engineering related fields	2,600	6.8	D	12.7	40.7	38.0	78.0
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	2.9	7.1	11.4	46.4	32.2	79.4
Psychology and social sciences	31,200	5.0	7.3	12.7	44.0	30.9	80.9
Psychology	8,700	4.4	6.9	11.6	43.0	34.1	81.4
Social sciences	22,400	5.2	7.5	13.2	44.4	29.7	80.7
Health	13,400	2.6	5.5	9.7	45.3	36.8	78.1
Non-science and engineering	60,700	3.0	8.1	12.5	46.1	30.4	80.6
Education	21,100	2.5	6.2	11.4	45.8	34.1	82.1
Humanities	15,700	2.8	11.2	13.8	43.4	28.8	79.4
Other non-science and engineering	23,900	3.6	7.6	12.7	48.1	28.1	80.0

D = suppressed to avoid disclosure of confidential information.

[a] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-2

Satisfaction with position and early career doctorates who would take position again, by position type, employment setting, and position characteristics: 2017

(Percent and percent distribution)

Selected characteristic	Number of early career doctorates	Satisfaction with position					Would take position again if starting over
		Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied	
All early career doctorates	186,700	3.6	7.1	12.5	45.4	31.4	78.7
Position type[a]							
Faculty	125,600	3.5	7.2	12.5	46.3	30.5	79.6
Tenured faculty	27,300	3.7	5.3	11.3	46.8	32.9	79.2
Tenure-track faculty	58,500	3.2	6.1	11.5	47.7	31.5	80.4
Non-tenure track faculty with rank	13,000	4.0	6.7	13.3	46.9	29.0	79.5
Other faculty, no rank or tenure	26,800	4.0	11.7	15.3	42.3	26.8	78.2
Postdoctoral scholar	36,400	3.6	7.1	13.1	42.9	33.3	74.3
Research scientist or nonfaculty researcher	10,900	4.2	6.4	10.1	50.5	28.8	82.1
Other positions	13,800	3.4	6.4	13.3	40.6	36.3	79.8
Employment setting							
Academic institution[b]	178,900	3.6	7.1	12.6	45.5	31.2	78.5
Very high research activity university	83,000	3.4	6.7	12.2	45.3	32.3	78.3
High research activity university	27,500	3.8	8.5	12.7	48.1	26.9	74.6
Other college or university	68,500	3.6	7.2	13.1	44.5	31.6	80.4
FFRDC	7,800	4.0	5.6	9.4	45.3	35.7	82.8
Position tenure							
1 year or less	25,700	4.1	4.5	12.9	46.9	31.6	81.4
More than 1 year but less than 5 years	108,600	3.4	8.0	12.6	44.5	31.5	77.9
5 years or more	52,400	3.7	6.5	12.2	46.7	31.0	79.1
First-position status							
First position held after doctoral award	89,500	3.5	7.4	12.6	44.4	32.1	77.9
Not the first position	97,300	3.7	6.8	12.4	46.4	30.8	79.4
Position related to doctoral degree							
Closely	146,800	3.4	6.2	11.5	45.6	33.4	80.8
Somewhat	36,200	4.0	10.5	14.9	46.0	24.5	72.2
Not at all	3,700	6.9	9.9	28.3	35.1	19.9	59.9
Hours worked per week							
Less than 35 hours	16,300	3.8	7.0	13.5	43.1	32.6	82.9
35–44 hours	59,600	3.2	6.0	10.8	47.2	32.8	80.2
45–54 hours	62,400	2.9	6.5	11.4	46.3	32.8	79.5
55 hours or more	48,500	4.8	9.1	15.6	43.0	27.5	74.4

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-3a

Early career doctorates who indicate that various aspects of their sampled positions met or exceeded their expectations, by position type, employment setting, and position characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Number of early career doctorates for whom the item was applicable (denominator)	184,100	176,500	176,500	177,700	170,600	91,100	164,900	160,900	168,600	182,700	96,200
Percentage of early career doctorates	87.2	77.2	73.4	80.8	84.1	57.4	79.8	65.2	72.0	77.3	41.8
Position type[a]											
Faculty	85.6	75.9	74.4	82.3	95.2	60.2	80.9	67.6	67.8	73.9	40.1
Tenured faculty	86.4	81.3	82.4	87.6	96.0	66.5	84.1	71.7	70.3	76.2	42.8
Tenure-track faculty	85.5	82.5	80.3	89.5	96.4	59.6	82.8	74.7	71.1	74.8	43.0
Non-tenure track faculty with rank	88.4	69.7	67.9	77.4	89.8	66.7	83.7	59.5	67.4	79.7	36.9
Other faculty, no rank or tenure	83.6	53.7	50.9	58.2	94.5	50.9	70.2	41.8	54.3	66.2	32.4
Postdoctoral scholar	91.3	84.6	75.2	79.9	47.6	40.7	73.7	59.7	81.2	81.1	39.9
Research scientist or nonfaculty researcher	93.1	80.4	73.6	80.1	51.1	49.9	79.8	69.6	88.6	89.6	56.3
Other positions	86.9	64.2	56.7	69.8	73.7	69.6	86.8	55.1	69.9	87.2	46.7
Employment setting											
Academic institution[b]	87.0	77.0	73.1	80.7	85.2	57.7	80.0	65.2	71.1	76.7	41.2
Very high research activity university	89.4	82.5	76.4	83.1	76.6	55.4	80.1	69.7	79.1	80.3	43.6
High research activity university	85.9	75.4	72.5	80.1	90.3	57.3	80.5	64.9	65.6	73.4	39.1
Other college or university	84.5	70.8	69.3	78.0	92.6	60.2	79.8	59.4	63.1	73.6	39.0
FFRDC	92.9	81.5	79.2	83.0	44.1	47.8	74.9	65.4	90.8	90.1	51.9
Position tenure											
1 year or less	86.2	73.1	71.5	76.8	89.1	56.7	77.3	59.8	67.9	75.7	44.1
More than 1 year but less than 5 years	87.5	78.7	73.2	81.0	78.9	56.1	78.9	65.8	74.4	77.4	43.0
5 years or more	87.1	75.9	74.7	82.3	91.7	60.4	82.8	66.4	68.9	77.6	38.0
First-position status											
First position held after doctoral award	87.8	78.1	73.1	80.4	82.0	56.0	78.5	62.0	71.8	78.1	41.0
Not the first position	86.7	76.4	73.6	81.2	86.0	58.8	81.0	68.0	72.3	76.5	42.5
Position related to doctoral degree											

TABLE 7-3a

Early career doctorates who indicate that various aspects of their sampled positions met or exceeded their expectations, by position type, employment setting, and position characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Closely	88.2	80.0	76.6	83.9	86.8	58.8	81.2	67.4	72.8	77.9	42.6
Somewhat	84.5	66.9	61.3	70.0	74.0	52.0	75.4	57.5	69.7	75.1	38.9
Not at all	76.2	56.6	53.9	55.0	68.9	55.4	70.0	44.6	64.0	73.2	40.6
Hours worked per week											
Less than 35 hours	88.6	64.4	59.1	63.6	90.6	53.9	69.7	42.6	55.6	71.5	36.1
35–44 hours	87.6	78.6	74.0	80.8	80.3	57.0	77.8	63.7	74.7	80.0	44.9
45–54 hours	88.9	79.7	75.7	83.6	84.3	57.9	80.7	66.0	73.8	78.3	39.2
55 hours or more	84.3	75.4	73.3	81.4	85.8	58.5	83.7	70.6	70.2	74.2	42.9

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. "Not applicable" responses are excluded from the denominator for each column variable.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-3b

Early career doctorates who indicate that various aspects of their sampled positions exceeded their expectations, by position type, employment setting, and position characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Number of early career doctorates for whom the item was applicable (denominator)	184,100	176,500	176,500	177,700	170,600	91,100	164,900	160,900	168,600	182,700	96,200
Percentage of early career doctorates	24.5	17.2	11.6	14.2	21.0	8.1	23.0	13.7	17.8	20.2	7.9
Position type[a]											
Faculty	21.3	14.7	10.5	12.8	24.9	8.6	22.3	13.5	15.4	17.9	6.7
Tenured faculty	19.8	17.7	13.9	15.3	23.8	9.1	24.2	15.3	18.9	19.1	8.2
Tenure-track faculty	20.4	15.3	10.1	12.5	25.4	8.9	21.7	14.5	15.0	17.1	7.1
Non-tenure track faculty with rank	24.4	14.3	11.3	14.2	25.8	9.9	27.3	15.7	17.3	23.4	5.7
Other faculty, no rank or tenure	23.1	9.4	6.7	9.8	24.3	6.4	18.3	5.7	10.5	15.5	4.8
Postdoctoral scholar	32.8	26.5	16.1	19.1	9.5	6.3	22.9	15.9	26.2	25.6	10.4
Research scientist or nonfaculty researcher	27.6	20.1	12.4	15.4	7.4	5.4	24.5	14.1	22.0	23.9	10.0
Other positions	29.0	10.4	8.0	12.1	15.7	9.3	28.0	8.5	10.3	23.4	9.2
Employment setting											
Academic institution[b]	24.1	17.0	11.5	14.0	21.4	8.2	23.1	13.7	17.2	19.8	7.8
Very high research activity university	27.4	20.6	13.0	16.1	16.5	7.2	24.1	16.3	20.5	21.6	9.7
High research activity university	22.6	15.6	11.8	12.9	25.3	9.5	23.3	13.5	15.2	17.6	6.2
Other college or university	20.9	13.2	9.6	12.0	25.2	8.7	21.6	10.4	13.7	18.5	6.0
FFRDC	31.8	20.5	14.2	18.0	6.2	4.9	20.8	14.3	30.5	28.5	10.6
Position tenure											
1 year or less	22.8	14.0	8.8	12.3	23.0	8.5	20.1	11.8	15.3	19.2	8.6
More than 1 year but less than 5 years	26.3	18.1	11.9	14.8	19.5	8.4	23.0	14.0	18.7	21.1	8.2
5 years or more	21.5	16.7	12.4	13.9	23.0	7.3	24.3	13.8	16.9	18.8	6.9
First-position status											
First position held after doctoral award	25.6	18.6	13.1	15.6	21.6	8.1	23.6	13.5	18.1	20.7	8.7
Not the first position	23.4	15.9	10.2	12.9	20.4	8.1	22.4	13.9	17.5	19.7	7.1
Position related to doctoral degree											

TABLE 7-3b

Early career doctorates who indicate that various aspects of their sampled positions exceeded their expectations, by position type, employment setting, and position characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Closely	24.0	17.3	12.0	14.3	21.1	8.7	23.0	13.5	17.4	19.3	7.9
Somewhat	27.2	17.7	10.4	14.2	21.2	6.5	23.3	14.9	19.7	24.0	8.3
Not at all	17.3	8.3	5.4	9.8	12.6	D	17.4	10.8	12.6	17.7	6.0
Hours worked per week											
Less than 35 hours	23.7	11.8	8.9	10.1	20.1	4.2	15.5	8.1	12.8	17.5	3.5
35–44 hours	26.4	18.7	12.9	16.1	19.0	7.8	19.8	12.5	18.6	21.1	8.5
45–54 hours	23.7	16.3	10.9	13.4	20.3	8.2	24.2	13.7	18.2	20.5	7.4
55 hours or more	23.3	17.8	11.7	14.0	24.4	9.8	27.2	16.3	17.4	19.4	9.2

D = suppressed to avoid disclosure of confidential information.

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. "Not applicable" responses are excluded from the denominator for each column variable.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-4a

Early career doctorates who indicate that various aspects of their sampled positions met or exceeded their expectations, by doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Number of early career doctorates for whom the item was applicable (denominator)	184,100	176,500	176,500	177,700	170,600	91,100	164,900	160,900	168,600	182,700	96,200
Percentage of early career doctorates	87.2	77.2	73.4	80.8	84.1	57.4	79.8	65.2	72.0	77.3	41.8
Doctoral degree type											
Professional degree or doctoral equivalent[a]	88.8	67.8	62.5	69.6	87.0	72.0	87.9	56.3	60.0	82.7	42.2
Research degree	87.1	78.0	74.3	81.7	83.8	55.2	79.1	65.9	73.0	76.8	41.7
Years since doctoral degree											
1 year or less	89.2	79.5	73.9	80.1	73.9	52.6	75.7	60.9	73.1	78.3	43.7
2–5 years	86.9	76.6	72.2	80.4	83.5	57.1	78.0	64.1	71.5	76.6	40.5
6–10 years	86.6	76.7	74.6	81.7	90.0	60.3	84.3	68.8	72.1	77.5	42.2
Origin of doctoral degree											
U.S. degree	86.7	76.5	73.0	81.2	87.2	58.8	80.5	65.4	70.9	76.8	41.6
Non-U.S. degree	90.5	81.8	75.7	78.5	60.4	45.6	75.8	64.2	78.9	80.5	43.0
Field of doctoral degree											
Science and engineering	88.4	81.0	75.4	81.6	78.2	51.6	80.5	68.7	77.4	79.3	43.3
Biological, agricultural, and environmental life sciences	89.7	81.0	74.0	78.1	65.5	44.1	82.8	69.7	80.5	79.5	39.9
Agricultural and environmental life sciences	91.0	78.5	71.3	85.2	77.6	57.9	84.3	72.8	88.9	86.4	49.6
Biological and biomedical sciences	89.5	81.4	74.4	77.0	63.6	42.0	82.5	69.2	79.2	78.3	38.6
Engineering	90.7	83.6	77.4	84.2	75.5	53.1	80.0	70.9	81.5	82.0	51.5
Mathematics and computer sciences	90.0	82.6	79.6	82.3	88.2	56.3	79.7	72.6	79.7	82.9	44.3
Computer and information sciences	91.1	80.3	78.0	79.6	85.3	51.3	81.3	74.3	81.9	79.2	46.4
Mathematics and statistics	88.9	84.6	81.1	84.8	90.9	61.4	78.0	71.0	77.7	86.5	41.1
Multidisciplinary fields and science and engineering related fields	89.5	76.1	74.0	80.0	84.7	56.2	89.4	77.2	86.5	85.9	34.1
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	91.0	83.0	76.3	82.2	68.6	50.8	79.9	67.8	81.4	80.2	47.6

TABLE 7-4a

Early career doctorates who indicate that various aspects of their sampled positions met or exceeded their expectations, by doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Psychology and social sciences	83.4	77.8	73.4	82.9	91.1	55.8	78.6	64.8	67.9	74.9	36.5
Psychology	85.5	78.0	70.0	81.2	86.9	66.2	84.6	65.1	64.8	73.9	30.9
Social sciences	82.6	77.7	74.7	83.5	92.6	50.7	76.0	64.6	69.0	75.3	39.3
Health	85.1	69.4	71.2	78.8	87.7	72.6	83.4	62.5	71.4	80.6	35.5
Non-science and engineering	85.6	71.8	70.0	79.8	93.2	60.9	77.5	58.2	61.1	72.8	40.2
Education	87.5	64.8	63.7	75.0	88.2	65.9	83.8	57.9	56.3	77.9	42.5
Humanities	84.9	74.4	74.5	81.8	96.2	55.9	77.3	59.2	65.0	68.0	42.8
Other non-science and engineering	84.4	75.6	72.0	82.3	95.4	57.5	71.6	57.9	62.4	71.5	37.1

[a] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. "Not applicable" responses are excluded from the denominator for each column variable.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-4b

Early career doctorates who indicate that various aspects of their sampled positions exceeded their expectations, by doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Number of early career doctorates for whom the item was applicable (denominator)	184,100	176,500	176,500	177,700	170,600	91,100	164,900	160,900	168,600	182,700	96,200
Percentage of early career doctorates	24.5	17.2	11.6	14.2	21.0	8.1	23.0	13.7	17.8	20.2	7.9
Doctoral degree type											
Professional degree or doctoral equivalent[a]	29.4	11.7	9.4	13.6	22.5	12.4	20.8	9.3	10.6	17.6	7.5
Research degree	24.0	17.6	11.8	14.3	20.8	7.5	23.2	14.1	18.3	20.4	8.0
Years since doctoral degree											
1 year or less	29.1	20.0	13.0	17.5	18.9	8.1	22.8	13.8	19.2	21.8	10.0
2–5 years	24.3	17.6	11.9	14.5	21.8	7.8	22.5	13.5	18.0	19.8	6.9
6–10 years	22.2	15.0	10.5	12.1	21.0	8.4	23.6	13.9	16.7	19.8	8.0
Origin of doctoral degree											
U.S. degree	23.9	16.2	11.4	13.9	22.0	8.4	23.6	13.5	16.7	19.8	7.8
Non-U.S. degree	28.3	23.4	13.0	15.9	12.9	5.4	19.2	14.8	24.2	22.4	8.5
Field of doctoral degree											
Science and engineering	25.0	19.2	11.8	14.7	18.8	6.4	23.6	15.4	20.3	21.4	7.6
Biological, agricultural, and environmental life sciences	28.4	20.1	13.7	15.5	16.8	5.9	22.2	14.4	19.7	22.2	5.9
Agricultural and environmental life sciences	29.9	20.8	15.0	18.5	25.9	7.2	27.4	14.8	24.1	32.6	8.7
Biological and biomedical sciences	28.1	19.9	13.5	15.0	15.4	5.7	21.4	14.4	19.1	20.6	5.5
Engineering	26.8	19.6	11.1	14.3	18.1	7.0	21.7	17.7	21.1	22.7	10.2
Mathematics and computer sciences	23.7	15.5	12.4	14.8	23.0	5.3	21.7	16.7	20.3	19.3	5.9
Computer and information sciences	22.7	16.4	12.5	15.3	24.3	D	20.3	14.8	23.6	20.0	6.1
Mathematics and statistics	24.7	14.6	12.3	14.3	21.7	8.9	23.1	18.4	17.1	18.6	S
Multidisciplinary fields and science and engineering related fields	25.5	21.8	7.3	10.2	24.0	17.6	35.0	16.3	22.7	29.9	D
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	27.0	23.3	12.9	16.9	15.4	6.3	24.3	17.7	22.6	22.8	10.1

TABLE 7-4b

Early career doctorates who indicate that various aspects of their sampled positions exceeded their expectations, by doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Psychology and social sciences	20.0	16.7	9.8	12.9	20.5	6.4	25.5	12.7	18.8	18.9	5.8
Psychology	23.4	20.0	8.9	11.4	16.0	9.4	25.5	15.6	20.2	18.2	6.8
Social sciences	18.7	15.4	10.1	13.5	22.1	4.9	25.5	11.5	18.3	19.1	5.3
Health	27.1	13.5	12.6	14.2	28.9	11.9	19.6	10.8	16.2	20.7	4.6
Non-science and engineering	22.9	14.1	11.1	13.4	23.0	9.3	22.5	10.8	12.9	17.9	9.7
Education	28.4	15.2	12.2	14.9	21.8	9.9	24.5	10.6	10.4	18.6	9.8
Humanities	20.9	11.4	9.5	11.6	19.8	8.4	26.9	10.8	12.5	15.7	9.7
Other non-science and engineering	19.4	15.1	11.2	13.3	26.1	8.9	17.9	11.0	15.1	18.6	9.7

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

[a] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. "Not applicable" responses are excluded from the denominator for each column variable.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-5a

Early career doctorates who indicate that various aspects of their sampled positions met or exceeded their expectations, by demographic characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Number of early career doctorates for whom the item was applicable (denominator)	184,100	176,500	176,500	177,700	170,600	91,100	164,900	160,900	168,600	182,700	96,200
Percentage of early career doctorates	87.2	77.2	73.4	80.8	84.1	57.4	79.8	65.2	72.0	77.3	41.8
Sex											
Female	86.4	73.8	69.9	80.0	86.9	61.0	80.4	63.8	67.8	74.9	37.6
Male	88.0	80.2	76.5	81.6	81.4	53.8	79.3	66.4	75.8	79.4	45.0
Citizenship and sex											
U.S. citizen or permanent resident	87.0	76.2	73.1	81.3	87.9	59.5	81.3	66.6	70.9	77.0	42.2
Female	86.2	73.0	69.4	80.1	89.4	62.3	81.2	64.5	66.7	74.6	37.7
Male	87.9	79.4	76.8	82.5	86.4	56.4	81.3	68.8	75.1	79.6	46.2
Temporary visa holder	88.4	82.1	74.8	78.5	61.6	44.7	72.7	58.3	77.5	78.5	39.6
Female	88.6	80.0	73.2	79.0	64.1	48.2	73.7	58.5	76.0	77.7	36.6
Male	88.3	83.1	75.5	78.3	60.5	43.0	72.2	58.1	78.2	78.9	40.8
Ethnicity and race											
Hispanic or Latino	87.2	77.0	74.0	79.3	80.4	51.3	78.5	65.4	70.3	74.9	37.0
Not Hispanic or Latino											
Asian	87.7	81.5	76.2	80.6	73.8	52.4	74.8	64.3	76.4	78.5	44.6
Black or African American	86.4	71.7	71.0	80.2	92.3	56.6	76.2	58.6	63.4	78.0	32.4
White	87.4	76.4	72.7	81.4	86.7	59.6	81.9	66.3	71.7	77.2	41.9
Other race and ethnicity	82.9	73.5	71.8	72.2	83.0	61.2	77.7	56.7	66.3	74.4	45.8
Age quartile											
32 years and under	91.4	84.8	77.0	82.5	71.4	50.4	76.3	63.5	77.8	79.3	44.1
33–35 year	86.9	79.3	75.2	81.9	82.8	55.3	81.3	69.1	75.6	78.7	41.8
36–40 years	86.5	78.3	73.9	83.4	88.2	57.3	83.5	67.6	71.9	75.6	42.7
41 years or older	85.2	68.6	68.5	76.5	90.2	62.6	78.1	60.5	63.9	75.8	39.3
Marital status											
Never married	86.0	77.3	71.7	81.5	78.8	52.9	78.1	61.7	73.5	75.9	39.9
Married	88.2	78.2	74.9	81.5	85.0	58.8	80.8	66.2	72.3	78.2	42.4
Marriage-like relationship	82.6	74.4	66.1	76.4	82.7	57.3	78.8	66.0	70.8	71.2	39.5
Separated, divorced, widowed	82.9	66.8	65.9	74.3	88.1	52.4	72.7	61.5	64.3	76.2	40.4
Dependents											

TABLE 7-5a

Early career doctorates who indicate that various aspects of their sampled positions met or exceeded their expectations, by demographic characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
With dependents	87.7	78.0	74.9	82.1	86.7	59.2	80.9	66.5	71.7	77.8	42.9
Without dependents	86.7	76.4	71.8	79.4	81.2	55.3	78.6	63.8	72.4	76.6	40.5
Disability status											
With disability	85.1	71.1	68.6	76.2	86.1	54.9	79.8	60.3	67.7	73.7	38.5
Without disability	88.1	79.6	75.2	82.6	83.2	58.5	79.8	67.0	73.7	78.6	43.1

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. "Not applicable" responses are excluded from the denominator for each column variable.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-5b

Early career doctorates who indicate that various aspects of their sampled positions exceeded their expectations, by demographic characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
Number of early career doctorates for whom the item was applicable (denominator)	184,100	176,500	176,500	177,700	170,600	91,100	164,900	160,900	168,600	182,700	96,200
Percentage of early career doctorates	24.5	17.2	11.6	14.2	21.0	8.1	23.0	13.7	17.8	20.2	7.9
Sex											
Female	24.1	15.0	10.0	13.7	22.1	9.7	24.5	13.6	16.4	20.3	8.1
Male	24.8	19.1	13.0	14.7	20.0	6.5	21.5	13.8	19.0	20.1	7.8
Citizenship and sex											
U.S. citizen or permanent resident	23.8	15.9	11.2	13.9	22.0	8.6	23.6	13.9	16.5	19.7	7.9
Female	23.8	14.1	9.7	13.4	22.6	9.9	25.1	13.5	15.7	19.9	8.4
Male	23.8	17.8	12.6	14.4	21.4	7.1	22.1	14.4	17.4	19.6	7.5
Temporary visa holder	27.6	23.3	13.8	15.9	14.7	5.2	19.6	12.7	23.7	22.3	8.0
Female	26.2	22.2	12.6	16.1	16.5	7.6	20.0	14.9	21.9	23.7	5.8
Male	28.3	23.8	14.3	15.8	13.9	4.1	19.4	11.6	24.6	21.7	8.8
Ethnicity and race											
Hispanic or Latino	30.6	18.2	12.9	15.8	22.2	8.6	21.1	13.1	20.9	19.6	7.5
Not Hispanic or Latino											
Asian	25.1	20.6	14.6	14.3	18.9	7.9	16.2	12.7	20.2	21.1	9.6
Black or African American	27.5	16.9	10.3	14.8	24.2	7.3	23.8	16.9	17.9	25.2	11.7
White	23.4	15.9	10.5	13.8	21.0	8.1	25.0	14.0	16.7	19.5	6.9
Other race and ethnicity	24.0	20.0	13.5	18.5	24.9	10.3	27.5	10.1	16.4	21.7	11.7
Age quartile											
32 years and under	29.8	22.7	15.2	18.1	17.1	8.4	25.3	17.7	21.1	23.0	10.5
33–35 year	23.7	17.9	11.7	14.3	20.1	7.0	22.6	13.4	19.9	20.7	8.3
36–40 years	22.5	16.2	9.4	12.3	20.8	8.4	25.5	14.2	16.7	19.2	6.7
41 years or older	22.9	13.1	10.6	12.8	24.3	8.5	19.6	10.5	13.8	18.5	6.5
Marital status											
Never married	26.0	18.6	11.0	15.4	20.8	5.6	22.3	14.2	21.1	22.3	8.6
Married	24.0	17.5	12.1	14.3	19.9	8.6	22.7	13.6	17.6	20.0	8.1
Marriage-like relationship	23.1	15.8	10.7	12.6	26.7	11.0	26.0	14.8	13.8	17.3	7.9
Separated, divorced, widowed	27.6	11.0	7.5	10.8	29.5	6.6	24.4	12.0	14.5	19.2	3.7
Dependents											

TABLE 7-5b

Early career doctorates who indicate that various aspects of their sampled positions exceeded their expectations, by demographic characteristics: 2017

(Percent)

Selected characteristic	Increased subject matter knowledge	Conducted own independent research	Published papers	Presented papers at a professional conference	Taught courses	Provided clinical or professional services	Supervised others	Wrote grant proposals	Worked in interdisciplinary research environments	Collaborated or networked with colleagues	Developed marketable products
With dependents	23.4	16.8	11.9	14.0	20.9	8.7	22.6	14.0	16.7	19.2	6.9
Without dependents	25.6	17.6	11.4	14.4	21.0	7.5	23.4	13.4	18.9	21.2	9.1
Disability status											
With disability	23.3	16.0	10.0	13.0	22.8	8.3	25.5	13.7	16.5	19.7	8.8
Without disability	24.9	17.6	12.2	14.7	20.3	8.0	22.0	13.7	18.2	20.4	7.6

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. "Not applicable" responses are excluded from the denominator for each column variable.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-6

Early career doctorates who indicate that various critical competencies were very or extremely important to their sampled position, by doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Appropriately apply research methodologies	Develop new ideas, processes, or products	Critically analyze and evaluate findings and results	Demonstrate theoretical and practical understanding of your subject area	Work constructively with colleagues	Manage and influence others	Communicate ideas clearly and persuasively in writing	Communicate ideas clearly and persuasively orally	Effectively plan, manage, and deliver projects on time
Number of early career doctorates for whom the item was applicable (denominator)	173,800	179,400	181,400	184,300	182,900	180,300	185,200	185,500	179,800
Percentage of early career doctorates	69.3	70.6	77.1	81.5	66.2	59.9	80.6	80.1	69.5
Doctoral degree type									
Professional degree or doctoral equivalent[a]	54.7	65.7	72.2	82.4	76.5	74.4	80.1	84.0	79.4
Research degree	70.5	71.1	77.5	81.4	65.2	58.6	80.7	79.8	68.6
Years since doctoral degree									
1 year or less	74.6	73.3	80.6	80.7	65.5	57.6	79.2	77.4	69.3
2–5 years	68.5	70.2	76.3	81.2	66.3	59.1	80.5	80.2	69.7
6–10 years	67.4	69.7	76.1	82.2	66.3	62.3	81.6	81.6	69.4
Origin of doctoral degree									
U.S. degree	67.3	69.1	75.8	81.1	66.0	59.9	80.7	80.8	69.3
Non-U.S. degree	81.4	80.5	85.4	83.9	67.5	60.3	80.2	76.0	71.0
Field of doctoral degree									
Science and engineering	74.4	74.5	79.9	81.1	65.8	60.3	79.1	78.0	69.2
Biological, agricultural, and environmental life sciences	78.4	78.5	83.6	81.5	73.4	67.7	82.7	79.1	78.8
Agricultural and environmental life sciences	73.2	76.8	78.2	84.3	80.3	64.9	83.7	77.6	80.1
Biological and biomedical sciences	79.2	78.8	84.5	81.1	72.4	68.2	82.6	79.3	78.6
Engineering	77.4	81.1	83.8	83.8	70.2	68.0	80.9	81.1	71.3
Mathematics and computer sciences	67.0	69.0	70.8	77.5	60.5	48.0	70.0	72.4	54.5
Computer and information sciences	65.8	72.8	71.2	77.2	67.2	56.7	72.8	71.7	61.1
Mathematics and statistics	68.1	65.3	70.4	77.7	54.0	39.4	67.4	73.1	48.1

TABLE 7-6

Early career doctorates who indicate that various critical competencies were very or extremely important to their sampled position, by doctoral degree characteristics: 2017

(Percent)

Selected characteristic	Appropriately apply research methodologies	Develop new ideas, processes, or products	Critically analyze and evaluate findings and results	Demonstrate theoretical and practical understanding of your subject area	Work constructively with colleagues	Manage and influence others	Communicate ideas clearly and persuasively in writing	Communicate ideas clearly and persuasively orally	Effectively plan, manage, and deliver projects on time
Multidisciplinary fields and science and engineering related fields	70.5	72.1	77.5	84.2	70.7	69.4	79.6	80.6	75.9
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	79.4	79.6	85.6	81.8	65.5	61.8	76.1	75.0	69.7
Psychology and social sciences	68.6	65.7	74.0	79.8	57.9	51.9	80.2	79.3	63.6
Psychology	74.8	65.9	75.6	82.1	63.7	59.2	81.7	74.0	71.1
Social sciences	66.3	65.6	73.5	78.9	55.6	48.9	79.6	81.4	60.7
Health	61.8	62.7	69.9	80.8	76.6	72.9	78.9	77.3	72.8
Non-science and engineering	61.0	65.2	73.4	82.3	64.5	56.4	83.8	84.7	69.4
Education	57.8	67.6	74.5	82.6	75.5	70.7	81.6	83.2	76.1
Humanities	60.6	67.7	77.3	81.3	55.7	48.7	91.1	87.8	62.9
Other non-science and engineering	63.9	61.5	70.1	82.7	60.5	48.6	80.9	84.1	67.5

[a] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. "Not used in this position" responses are excluded from the denominator for each column variable.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 7-7

Early career doctorates who indicate that various critical competencies were very or extremely important to their sampled position, by position type, employment setting, and position characteristics: 2017

(Percent)

Selected characteristic	Appropriately apply research methodologies	Develop new ideas, processes, or products	Critically analyze and evaluate findings and results	Demonstrate theoretical and practical understanding of your subject area	Work constructively with colleagues	Manage and influence others	Communicate ideas clearly and persuasively in writing	Communicate ideas clearly and persuasively orally	Effectively plan, manage, and deliver projects on time
Number of early career doctorates for whom the item was applicable (denominator)	173,800	179,400	181,400	184,300	182,900	180,300	185,200	185,500	179,800
Percentage of early career doctorates	69.3	70.6	77.1	81.5	66.2	59.9	80.6	80.1	69.5
Position type[a]									
Faculty	65.0	66.3	72.8	82.9	62.6	58.5	80.9	82.6	67.1
Tenured faculty	63.9	63.1	71.9	82.4	59.8	54.3	82.3	81.9	64.7
Tenure-track faculty	71.3	70.8	77.1	83.7	62.3	58.8	84.0	81.9	68.9
Non-tenure track faculty with rank	58.4	69.4	73.7	83.5	76.3	70.7	79.0	83.9	69.8
Other faculty, no rank or tenure	52.8	57.2	62.9	81.3	59.5	56.0	73.5	84.2	63.8
Postdoctoral scholar	85.4	82.7	88.9	80.5	67.8	56.6	80.9	71.5	69.6
Research scientist or nonfaculty researcher	83.0	83.1	89.4	79.4	78.3	62.4	80.0	74.7	77.8
Other positions	49.2	66.4	73.8	72.0	83.6	79.8	77.9	85.4	83.9
Employment setting									
Academic institution[b]	68.6	70.0	76.5	81.3	65.4	59.9	80.6	80.2	69.4
Very high research activity university	76.4	78.6	83.7	81.8	65.8	60.7	82.3	78.1	71.6
High research activity university	67.9	67.0	75.8	83.6	64.0	59.0	81.7	81.1	67.9
Other college or university	58.9	60.4	67.9	79.8	65.5	59.1	78.0	82.4	67.2
FFRDC	84.1	85.7	90.3	84.4	82.7	61.7	81.9	78.4	72.4
Position tenure									
1 year or less	68.0	69.8	76.2	83.2	65.1	60.5	79.0	82.6	71.2

TABLE 7-7

Early career doctorates who indicate that various critical competencies were very or extremely important to their sampled position, by position type, employment setting, and position characteristics: 2017

(Percent)

Selected characteristic	Appropriately apply research methodologies	Develop new ideas, processes, or products	Critically analyze and evaluate findings and results	Demonstrate theoretical and practical understanding of your subject area	Work constructively with colleagues	Manage and influence others	Communicate ideas clearly and persuasively in writing	Communicate ideas clearly and persuasively orally	Effectively plan, manage, and deliver projects on time
More than 1 year but less than 5 years	72.4	73.1	78.8	81.1	66.7	59.1	80.3	78.1	69.3
5 years or more	63.4	66.0	74.0	81.3	65.4	61.4	82.1	83.2	69.2
First-position status									
First position held after doctoral award	69.2	69.8	76.9	80.1	65.4	57.7	80.4	79.7	69.1
Not the first position	69.3	71.4	77.3	82.7	66.8	62.0	80.8	80.6	69.9
Position related to doctoral degree									
Closely	70.6	71.7	78.1	83.8	65.7	60.2	82.6	81.2	70.0
Somewhat	64.8	67.1	73.8	73.7	67.4	58.8	73.2	75.7	66.5
Not at all	54.3	62.2	67.4	62.1	70.7	61.9	73.9	80.4	80.8
Hours worked per week									
Less than 35 hours	57.7	62.0	67.3	82.4	59.7	59.9	74.1	80.0	67.1
35–44 hours	68.2	68.9	75.6	79.1	68.6	59.1	79.1	78.5	69.4
45–54 hours	69.4	71.0	78.3	82.1	66.8	60.1	82.4	80.6	68.9
55 hours or more	73.8	75.0	80.5	83.2	64.2	60.8	82.4	81.7	71.0

FFRDC = federally funded research and development center.

[a] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[b] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. "Not used in this position" responses are excluded from the denominator for each column variable.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 8-1

First-position type held by early career doctorates, by doctoral degree characteristics and demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Percentage of early career doctorates in first position	First-position type[a]						
			Faculty				Postdoctoral scholar[c]	Research scientist or nonfaculty researcher	All other positions[d]
			Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[b]			
All early career doctorates	186,700	47.9	8.9	17.0	4.9	17.0	37.7	4.9	9.5
Doctoral degree type									
Professional degree or doctoral equivalent[e]	15,700	57.7	4.9	8.1	15.6	24.1	5.5	2.4	39.5
Research degree	171,100	47.0	9.3	17.8	3.9	16.3	40.7	5.1	6.8
Years since doctoral degree									
1 year or less	36,900	81.7	1.0	21.7	4.7	15.4	44.1	5.1	8.0
2–5 years	82,800	47.0	4.9	20.7	4.8	17.5	37.7	4.9	9.6
6–10 years	67,000	30.4	18.3	9.9	5.2	17.1	34.3	4.9	10.2
Origin of doctoral degree									
U.S. degree	161,800	48.6	9.9	18.7	5.3	18.7	32.3	4.8	10.4
Non-U.S. degree	24,900	43.5	2.4	6.2	2.5	6.1	73.1	5.9	3.8
Field of doctoral degree									
Science and engineering	112,600	44.5	6.4	11.9	3.0	11.6	56.1	6.1	4.9
Biological, agricultural, and environmental life sciences	28,900	41.6	1.7	4.6	2.5	5.4	78.5	3.6	3.6
Agricultural and environmental life sciences	3,900	41.6	4.1	7.8	3.4	4.7	67.8	4.9	7.3
Biological and biomedical sciences	24,900	41.6	1.3	4.1	2.4	5.5	80.2	3.4	3.1
Engineering	17,200	47.1	6.5	11.5	1.7	6.7	56.7	12.5	4.5
Mathematics and computer sciences	12,100	53.8	11.6	19.7	5.6	11.7	38.6	9.7	3.1
Computer and information sciences	5,900	58.6	12.1	22.7	2.5	10.3	32.8	15.3	S
Mathematics and statistics	6,200	49.3	11.1	17.0	8.4	13.0	44.0	4.4	2.1
Multidisciplinary fields and science and engineering related fields	2,600	40.1	D	3.7	S	25.8	47.3	D	13.3
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	38.7	1.2	4.4	1.3	8.3	76.8	5.8	2.2
Psychology and social sciences	31,200	46.2	12.4	21.3	4.4	20.9	28.9	4.1	8.2
Psychology	8,700	36.5	8.4	14.4	3.0	13.8	44.0	2.7	13.7
Social sciences	22,400	49.9	13.9	24.0	S	23.6	23.0	4.6	6.0

TABLE 8-1

First-position type held by early career doctorates, by doctoral degree characteristics and demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Percentage of early career doctorates in first position	First-position type[a]						
			Faculty				Postdoctoral scholar[c]	Research scientist or nonfaculty researcher	All other positions[d]
			Tenured faculty	Tenure-track faculty	Non-tenure track faculty with rank	Other faculty, no rank or tenure[b]			
Health	13,400	49.4	6.9	18.8	16.0	14.1	16.7	4.1	23.3
Non-science and engineering	60,700	54.0	14.0	26.2	6.0	27.6	8.3	2.9	15.0
Education	21,100	59.1	10.3	16.9	7.9	26.4	5.7	3.1	29.6
Humanities	15,700	43.8	12.9	20.3	4.4	39.1	13.0	2.1	8.1
Other non-science and engineering	23,900	56.2	17.9	38.2	5.3	21.2	7.4	3.2	6.6
Position tenure									
1 year or less	25,700	38.4	2.0	19.0	3.3	27.9	35.7	4.5	7.6
2–5 years	108,600	43.5	1.2	19.1	4.3	14.7	46.0	5.3	9.4
6–10 years	52,400	61.8	28.3	11.8	6.9	16.3	21.7	4.3	10.7
Sex									
Female	89,400	48.1	8.6	18.3	6.5	19.9	30.9	3.8	12.0
Male	97,300	47.7	9.2	15.8	3.4	14.3	44.0	6.0	7.2
Citizenship and sex									
U.S. citizen or permanent resident	156,100	45.5	10.5	17.7	5.4	19.2	31.5	4.9	10.8
Female	79,900	46.4	9.5	18.5	7.0	21.4	27.0	3.5	13.0
Male	76,300	44.6	11.4	16.8	3.7	16.9	36.3	6.3	8.5
Temporary visa holder	30,600	60.2	1.2	13.6	2.3	5.7	69.3	5.0	2.8
Female	9,600	62.7	1.0	16.7	2.3	7.9	63.2	5.7	3.1
Male	21,000	59.0	1.2	12.2	2.3	4.8	72.1	4.6	2.7
Ethnicity and race									
Hispanic or Latino	13,600	49.8	8.2	23.0	3.9	16.2	36.9	3.7	8.0
Not Hispanic or Latino									
Asian	37,600	56.3	7.1	18.4	3.5	7.1	54.9	4.9	4.1
Black or African American	10,100	51.5	8.9	18.9	S	26.8	18.2	3.2	16.4
White	120,800	45.2	9.8	15.5	5.2	19.4	34.2	5.2	10.7
Other race and ethnicity	4,700	37.6	3.1	24.4	5.0	14.0	35.9	5.4	12.2
Age quartile									
32 years and under	38,400	64.4	0.6	16.3	2.6	8.1	61.0	5.3	6.1
33–35 year	51,100	42.4	5.4	20.0	3.0	13.9	46.0	5.4	6.3
36–40 years	41,900	37.3	12.2	17.5	4.1	17.2	35.9	4.7	8.4
41 years or older	55,300	49.5	15.5	14.4	8.9	25.8	15.4	4.4	15.7
Disability status									
With disability	51,700	46.1	10.9	15.9	4.9	20.8	32.5	4.5	10.5
Without disability	135,000	48.6	8.2	17.5	4.9	15.5	39.7	5.1	9.1

D = suppressed to avoid disclosure of confidential information. S = suppressed for reliability; coefficient of variation exceeds publication standards.

[a] Includes those whose sampled position was also their first position.

[b] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts.

[c] Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research.

[d] All other positions are diverse but are typically university administrators and staff.

[e] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 8-2

Changes in career aspirations of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Same career aspirations as when doctorate awarded[a]	Different career aspirations than when doctorate awarded
All early career doctorates	186,700	66.1	33.9
Position type[b]			
Faculty	125,600	68.8	31.2
Tenured faculty	27,300	72.6	27.4
Tenure-track faculty	58,500	76.4	23.6
Non-tenure track faculty with rank	13,000	56.4	43.6
Other faculty, no rank or tenure	26,800	54.2	45.8
Postdoctoral scholar	36,400	65.8	34.2
Research scientist or nonfaculty researcher	10,900	56.4	43.6
Other positions	13,800	50.2	49.8
Employment setting			
Academic institution[c]	178,900	66.3	33.7
Very high research activity university	83,000	67.8	32.2
High research activity university	27,500	66.1	33.9
Other college or university	68,500	64.7	35.3
FFRDC	7,800	60.8	39.2
Doctoral degree type			
Professional degree or doctoral equivalent[d]	15,700	62.0	38.0
Research degree	171,100	66.5	33.5
Years since doctoral degree			
1 year or less	36,900	73.3	26.7
2–5 years	82,800	66.0	34.0
6–10 years	67,000	62.3	37.7
Origin of doctoral degree			
U.S. degree	161,800	65.4	34.6
Non-U.S. degree	24,900	70.6	29.4
Field of doctoral degree			
Science and engineering	112,600	66.5	33.5
Biological, agricultural, and environmental life sciences	28,900	61.3	38.7
Agricultural and environmental life sciences	3,900	59.4	40.6
Biological and biomedical sciences	24,900	61.6	38.4
Engineering	17,200	68.2	31.8
Mathematics and computer sciences	12,100	71.9	28.1
Computer and information sciences	5,900	68.2	31.8
Mathematics and statistics	6,200	75.3	24.7
Multidisciplinary fields and science and engineering related fields	2,600	71.8	28.2
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	20,600	65.2	34.8
Psychology and social sciences	31,200	68.7	31.3
Psychology	8,700	64.6	35.4

TABLE 8-2

Changes in career aspirations of early career doctorates, by position type, employment setting, and doctoral degree characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Same career aspirations as when doctorate awarded[a]	Different career aspirations than when doctorate awarded
Social sciences	22,400	70.3	29.7
Health	13,400	56.7	43.3
Non-science and engineering	60,700	67.4	32.6
Education	21,100	65.2	34.8
Humanities	15,700	65.1	34.9
Other non-science and engineering	23,900	70.9	29.1
Position tenure			
1 year or less	25,700	66.0	34.0
More than 1 year but less than 5 years	108,600	66.3	33.7
5 years or more	52,400	65.7	34.3

FFRDC = federally funded research and development center.

[a] Indicates that the early career doctorate selected the same response option in two different questions on career aspirations; one at the time they completed their degree and the other at the time they completed the survey.

[b] Other faculty, no rank or tenure, positions includes all other faculty positions such as instructors, lecturers, and adjuncts. Postdoctoral scholar positions are temporary positions in academe, industry, government, or a nonprofit organization primarily for gaining additional education and training in research. Other positions are diverse but are typically university administrators and staff.

[c] Academic institutions include U.S. academic institutions in the Survey of Graduate Students and Postdoctorates in Science and Engineering that grant master's and doctorate degrees in science, engineering, and health-related fields.

[d] Includes medical and related degrees, such as Medical Doctors (MD), Doctor of Pharmacy (PharmD), and other professional degrees such as Doctor of Education (EdD).

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE 8-3

Changes in career aspirations of early career doctorates, by demographic characteristics: 2017

(Percent distribution)

Selected characteristic	Number of early career doctorates	Same career aspirations as when doctorate awarded[a]	Different career aspirations than when doctorate awarded
All early career doctorates	186,700	66.1	33.9
Sex			
Female	89,400	62.8	37.2
Male	97,300	69.1	30.9
Citizenship and sex			
U.S. citizen or permanent resident	156,100	65.0	35.0
Female	79,900	62.4	37.6
Male	76,300	67.8	32.2
Temporary visa holder	30,600	71.6	28.4
Female	9,600	66.8	33.2
Male	21,000	73.7	26.3
Ethnicity and race			
Hispanic or Latino	13,600	68.4	31.6
Not Hispanic or Latino			
Asian	37,600	69.3	30.7
Black or African American	10,100	55.6	44.4
White	120,800	65.6	34.4
Other race and ethnicity	4,700	69.6	30.4
Age quartile			
32 years and under	38,400	68.4	31.6
33–35 year	51,100	69.6	30.4
36–40 years	41,900	64.4	35.6
41 years or older	55,300	62.6	37.4
Marital status			
Never married	29,500	67.2	32.8
Married	135,400	66.0	34.0
Marriage-like relationship	11,500	66.4	33.6
Separated, divorced, widowed	10,300	64.3	35.7
Dependents			
With dependents	96,800	66.6	33.4
Without dependents	90,000	65.6	34.4
Disability status			
With disability	51,700	62.9	37.1
Without disability	135,000	67.3	32.7

[a] Indicates that the early career doctorate selected the same response option in two different questions on career aspirations; one at the time they completed their degree and the other at the time they completed the survey.

Note(s):
Counts are rounded to the nearest 100. Percentages are calculated from unrounded counts and rounded to the nearest 10th of a percent. Details may not add to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

Technical Notes

Survey Overview (FY 2017 survey cycle)

Purpose. The Early Career Doctorates Survey (ECDS) is designed to provide nationally representative statistics on recent doctorate (or equivalent) recipients working at U.S. master's degree- or doctorate-granting academic institutions (excluding medical schools and centers) and federally funded research and development centers (FFRDCs). Established by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation to address the need for greater information on postdoctoral researchers (postdocs) and individuals working in the United States who earned their first doctoral degree abroad, the ECDS provides the most comprehensive data collected to date on the demographics, labor market experiences, and jobs held by doctorates in the first decade after earning their degree. These data include information on job quality and training, professional activities and achievements, work-life balance, mentoring, research opportunities, and career plans.

Data collection authority. The information is solicited under the authority of the National Science Foundation Act of 1950, as amended, the America COMPETES Reauthorization Act of 2010, and the Confidential Information Protection and Statistical Efficiency Act of 2002. The Office of Management and Budget control number for this survey is 3145-0235, which expired on 30 September 2019.

Survey contractor. RTI International.

Survey sponsors. NCSES and National Institutes of Health (NIH).

Key Survey Information

Frequency. The frequency of this data collection has not been established.

Initial survey year. 2017. This was the first full-scale ECDS. The pilot study was conducted in 2015.

Reference period. The week of 1 October 2017.

Response unit. Individuals working at U.S. academic institutions (excluding medical schools and centers) and FFRDCs.

Sample or census. Sample.

Population size. Approximately 186,700 individuals. Note: Estimating the size of the U.S. early career doctorate population is a goal of the ECDS.

Sample size. 15,465 individuals.

Survey Design

Target population. The 2017 ECDS target population was all individuals who

- Earned their first doctoral degree (PhD, MD, or equivalent) between 1 July 2007 and 30 June 2017, and
- Were working in a master’s degree– or doctorate–granting U.S. academic institution (excluding medical schools and centers) or FFRDC during the week of 1 October 2017.

Sampling frame. Lists of potential early career doctorates—persons receiving their first doctorate within the past 10 years—working at institutions sampled from the set of academic institutions included in the 2016 Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS), and all FFRDCs listed on the FFRDC Master Government List maintained by NSF (https://www.nsf.gov/statistics/ffrdclist/).

Sample design. The ECDS employed a two-stage sample design.

The first stage was a stratified sample of 344 institutions with academic institutions, FFRDCs, and the NIH Intramural Research Program (NIH IRP) placed in separate strata. Within academic institutions, large universities with medical schools and centers were split into medical and non-medical sampling units. The non-medical academic sampling units were then stratified into three subgroups based on Carnegie classification.

In the second stage, a stratified sample of potential early career doctorates was selected from each of the responding institutions. The sample was stratified by postdoc status, citizenship, race, and sex to enhance representation across these key domains.

Due to low response rates and the resulting potential for nonresponse bias in subpopulation estimates, data for the medical schools and centers and the NIH IRP strata are excluded from published tables and figures. However, for research purposes, restricted-use data are available that include responses from early career doctorates working at medical schools and centers and the NIH IRP. (Learn how to apply for access to restricted use microdata at **https://www.nsf.gov/statistics/license**/.)

Data Collection and Processing Methods

Data collection. As noted above, the ECDS was a two-stage data collection. The first stage included obtaining lists of all potential early career doctorates working at the sampled institutions the week of 1 October 2017 and who had earned their first doctorate or equivalent between 1 July 2007 and 30 June 2017. When highest degree or doctoral award date were missing for some early career doctorates within the sampled institution's administrative data, those institutions were asked to include all individuals with job titles that were likely to be filled by doctorate holders.

For the second stage of data collection, two modes of data collection were available to early career doctorates: a Web-based survey and computer-assisted telephone interviewing (CATI). The recruitment protocol included a notification contact followed by an e-mail containing a unique link to the Web survey. A series of multimodal reminders (e-mail, mail, and phone) were used to improve response rates. These reminders ceased when the sample member completed the survey, was determined to be ineligible, or refused to participate. No incentives were offered to participants.

Mode. Stage 1 respondents uploaded their lists of early career doctorates through a secure Web portal (SSL FTP site). Almost all stage 2 respondents completed the survey on the Web (91% used a computer to access the instrument, and 6% used a tablet or cellphone); 3% responded using CATI or a mix of CATI and Web-survey modes.

Response rates. The response rate calculations below adhere to American Association for Public Opinion Research standards for computing response rates.[1] For the academic institutions (excluding medical schools and centers) and FFRDCs, the institution response rate was 77.0%. The individual-level response rate was 65.1%. (See technical tables A-1 and A-2 for the stages 1 and 2 response rates.)

As noted above, due to low response rates, data for the medical schools and centers and the NIH IRP strata are excluded from published tables and figures. For research purposes, the restricted-use data include responses from early career doctorates working at medical schools and centers and the NIH IRP.

Data editing. The data collected in the ECDS were subject to both manual and automated data processing and correction procedures. After data collection, several types of data edits were applied.

These included the application of "reserve codes" for logical skips and different types of missing data, as well as rule-based and case-level edits. If an item was skipped due to the routing logic of the instrument, the missing value was replaced with a value of -1, which is the code reserved for logical skip. All remaining missing responses were set to a missing reserve code (-8) if the respondent stopped responding prior to reaching the item or -9 for all other types of nonresponse.

Imputation. Questionnaire items with missing data within the ECDS were imputed through an approach that included the use of three imputation techniques: (1) cold-deck imputation, (2) logical imputation, and (3) hot-deck imputation. Some items experienced all three techniques, whereas other items experienced only one or two of the techniques. As an example, for the questionnaire items in the education history section, only cold-deck imputation was used, and as a result, these items could include some missing values after the imputation process. Cold-deck imputation used information from the 2015 ECDS pilot study frame data or the Doctorate Records File to fill missing data within common items (e.g., gender and year born) based on an exact, unique match for certain respondents. Logical imputation was used when a relationship among missing items in the questionnaire could be deduced (e.g., if a respondent is a U.S. citizen, logically the respondent should skip the Green Card question as it does not apply). Data still missing after the use of the first two imputation techniques were then imputed through a cyclical weighted sequential hot-deck (WSHD) method which replaces missing data by imputing plausible values from statistically selected donor cases (stochastic imputation) (Cox 1980; Iannacchione 1982). The screener and basic demographics sections of the questionnaire and certain additional questionnaire items were selected and imputed first. These core questionnaire items were then available to be used in the construction of the imputation cells for all other sections. Items were imputed by questionnaire section and the order they were asked within the section.

Weighting. The ECDS used a complex sample design. To produce population estimates, person-level analysis weights were calculated that accounted for the differential sampling rates used in the first and second stages and were then adjusted to account for nonparticipation and unreleased institutions in the first stage and nonresponse and unknown eligibility in the second stage. Estimates were calculated as the sums of the final person-level analysis weights. Replicate weights used in the jackknife variance estimation technique were calculated in a similar manner.

Detailed information on the weighting procedures is contained in the ECDS Methodology Report, available upon request from the ECDS Survey Manager.

Variance estimation. For a clustered sample like ECDS (where early career doctorates are clustered within institutions), the estimate of the variance is calculated based on the variability across cluster-level estimates. With a stratified sample, this variability is calculated within each sampling stratum and then aggregated across strata. To account for complex sample design and weighting adjustment steps we developed replicate weights for variance estimation (Wolter 2007), specifically using the delete-1 jackknife method.

Users of the data can calculate estimates and their variance estimates (or standard errors) using the full-sample weights and the 183 replicate weights.

Disclosure protection. To protect against the disclosure of confidential information provided by ECDS respondents, the estimates presented in data tables and the InfoBrief are rounded and small cells are suppressed. All weighted counts are rounded to the nearest 100, standard errors are rounded up to the nearest 50, although calculations of percentages are based on unrounded estimates. Median salaries are rounded to the nearest $1,000, and the associated standard errors are rounded up to the nearest $500. Cells are suppressed when the raw count is less than 5, as indicated by the letter D in tables.

Survey Quality Measures

Sampling error. ECDS estimates are subject to sampling errors. Estimates of sampling errors associated with this survey were calculated using the jackknife replicate weights. Data table estimates with coefficients of variation (that is, the estimate divided by its standard error) that exceed 50% are deemed unreliable and are suppressed. The letter S indicates this type of suppression in a table cell.

Coverage error. At the institution level, coverage extends to all institutions in the GSS universe (a census of U.S. academic institutions granting master's or doctorate degrees in science, engineering, or health) and all FFRDCs (based on a Master Government List maintained by NSF) and thus coverage error in minimal. A few small universities were dropped from the stage 1 sampling frame as they would not have had enough early career doctorates to obtain the required stage 2 sample (even if combined with another institution). The potential undercoverage associated with the dropping of these institutions is minimal (estimated at 0.2%) due to the small number of early career doctorates at these institutions.

At the individual level, undercoverage would result if an institution omitted some early career doctorates from the lists they provided (e.g., by leaving out individuals working at a particular center). Similarly, overcoverage could result if an institution's list includes ineligible individuals (i.e., those who do not have a doctoral degree or whose degree was awarded more than 10 years ago). Throughout the list development process, list coordinators received guidance to help avoid these types of errors; and lists were checked against expected counts to minimize coverage error.

Nonresponse error. For the academic institutions (excluding medical schools and centers) and FFRDCs, the institution response rate was 77.0% and the individual-level response rate was 65.1%.

To examine the potential nonresponse bias in the 2017 ECDS data, a nonresponse analysis study was conducted. Results of the study showed that all detectable differences were properly addressed by the nonresponse weighting adjustments of the survey data.

As noted above, due to low response rates and the resulting potential for nonresponse bias in subpopulation estimates, data for the medical schools and centers and the NIH IRP strata are excluded from published tables and figures. For research purposes, the restricted-use data include responses from early career doctorates working at medical schools and centers and the NIH IRP.

Measurement error. Cognitive testing of the survey instrument informed decisions to help minimize measurement errors from ambiguous questions and from a multimode survey approach.

Data Comparability

This is the first full-scale implementation of the ECDS. Limited data elements are comparable with those from the ECDS pilot study and the Survey of Doctorate Recipients. As a result, use caution when comparing ECDS data with data from other sources.

Changes in survey coverage and population. As noted above, because of low response rates and the resulting potential for bias in subpopulation estimates, data for the medical schools and centers and the NIH IRP are excluded from the 2017 ECDS published tables and figures whereas the InfoBrief for the 2015 ECDS pilot study included data for medical schools and centers and the NIH IRP.

Changes in questionnaire. The 2017 ECDS instrument retained the core data elements of the 2015 ECDS pilot study instrument. However, a few major changes were made to the pilot study instrument for inclusion in the full-scale data collection. These changes were implemented to improve the quality and analytic utility of the data.

- The 2015 ECDS pilot study collected information on the first full-time paid position, whereas the 2017 ECDS collected information on the first position, whether it was paid or unpaid, full-time or part-time.
- The 2015 ECDS pilot study collected data on the current position; that is, the position the early career doctorate held when completing the survey. In contrast, the 2017 ECDS asked about the position that the early career doctorate held at the sampled institution during the week of 1 October 2017.

- The order in which data on these positions were collected differed as well. In the 2015 ECDS pilot study respondents were asked about their positions chronologically: first full-time paid position followed by current position. In the 2017 ECDS instrument, respondents were asked to report on the position they held during the week of 1 October 2017 followed by first position.
- To minimize item nonresponse on questionnaire items used to produce key estimates, the demographic information section was split into two parts for the 2017 ECDS; one of these parts was moved closer to the beginning of the survey, so complete information on sex, race and ethnicity, birth year, U.S. citizenship, and English as a first language was collected for most respondents.

Changes in reporting procedures or classification. The 2017 ECDS added the Institutional Portal, a website created for the full-scale survey to facilitate the completion of the stage 1 data collection by institutional staff. The portal allowed institutions to grant survey approval, appoint coordinators for the ECDS, upload the list of early career doctorates, and send the prenotification e-mails out to begin stage 2 data collection.

Definitions

Citizenship and race. Institutions in stage 1 provided combined citizenship and race data on the lists of early career doctorates to be used in stage 2 sample selection. Non-U.S. citizens were collected as a single group, and for U.S. citizens, a simplified 3-category race variable was collected, corresponding to the stage 2 sampling strata: Asian, White, and underrepresented minority.

Doctoral or doctorate degree. For this survey, the terms "doctoral degree" and "doctorate degree" were used interchangeably to refer to any kind of doctoral degree or international equivalent, aside from a juris doctor (JD) degree. Examples included PhD, EdD, DSc, MD, DO, DDS, DVM, and MBBS, among many others.

Early career doctorate. An individual who received their first doctoral degree between 1 July 2007 and 30 June 2017 and was working at one of the institutions selected for the survey during the week of 1 October 2017. The individual could have held any type of position (e.g., faculty, staff, postdoctorate, nonfaculty research) and received their doctoral degree from an institution in any country and in any discipline. All doctoral-level degrees were eligible (e.g., PhD, EdD, DSc, MD, DO, DDS, DVM, MBBS, and international equivalents), with the exception of JDs.

ECDS methodological study. From July 2012 through February 2013, NCSES conducted a methodological study with 81 institutions to test the feasibility of obtaining lists of early career doctorates and then sampling and surveying the early career doctorates based on these institutional lists.

ECDS pilot study. Conducted between July 2014 and March 2015, the pilot version of the survey involved 176 unique institutions and was designed to improve upon the methodology and initial study design for full scale data collection.

Federally funded research and development center (FFRDC). One of the three types of institutions included in the survey, an FFRDC is a unique type of nonprofit organization that is sponsored and funded by the U.S. government to meet a special long-term research or development need (**https://www.nsf.gov/statistics/ffrdclist/**).

Field of doctorate. The doctoral field is as specified by the respondent in the ECDS at the time of the survey, coded using classification of instructional program (CIP) codes. The CIP codes were subsequently recoded to the NCSES Taxonomy of Disciplines (ToD) used in the ECDS tables. See **technical table A-3** for the crosswalk between the CIP codes and ToD fields used in the ECDS tables. The CIP-ToD crosswalk used to create these fields and to enable comparison among NCSES surveys is available upon request from the ECDS Survey Manager.

Foreign doctorate degree. A respondent's doctorate or equivalent was earned outside of the United States.

Postdoctoral researchers (postdocs). The definition of a postdoc varies by institution and individuals. Respondents were provided the following guidance: “For the purposes of this survey, a postdoctoral appointment, or “postdoc,” is a temporary position awarded in academe, industry, government or a non-profit organization primarily for gaining additional education and training in research.”

NCSES 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.

Race and ethnicity. Ethnicity is defined as Hispanic or Latino or not Hispanic or Latino. Values for those selecting a single race include American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. Those persons who report more than one race and who are not of Hispanic or Latino ethnicity also have a separate value. Race and ethnicity were collected for all respondents, regardless of citizenship status.

Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS). The GSS is an annual census of all U.S. academic institutions granting research-based master's degrees or doctorates in science, engineering, and selected health fields as of fall of the survey year. Eligible institutions offer at least one graduate program in science, engineering, or health. The GSS is sponsored by NCSES and by NIH.

Stage 1. Stage 1 of data collection involved working with a list coordinator at each institution to develop a list of early career doctorates to be used as a sampling frame.

Stage 2. Stage 2 of data collection involved inviting a sample of early career doctorates at each institution to participate in the Web-based ECDS to collect information about their academic and professional experiences.

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

Underrepresented minorities (URMs). This category comprises three racial or ethnic minority groups (Blacks or African Americans, Hispanics or Latinos, and American Indians or Alaska Natives) whose representation in science and engineering education or employment is smaller than their representation in the U.S. population.

University-affiliated medical schools and centers. Medical schools, hospitals, or medical centers that were eligible for the GSS are affiliated with a university that was eligible for the GSS.

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).

Technical Tables

TABLE A-1

Stage 1 response rate, by institution type: 2017

(Number and percent)

Institution type	Full ECDS sample (restricted-use data)			Public ECDS sample		
	Total sampled institutions	Number of participating institutions	Percent	Total sampled institutions	Number of participating institutions	Percent
Total	344	261	75.9	256	197	77.0
Academic institution	292	220	75.3	228	180	78.9
Medical school and center	64	40	62.5	na	na	na
Very high research activity university	80	70	87.5	80	70	87.5
High research activity university	60	51	85.0	60	51	85.0
Other college or university	88	59	67.0	88	59	67.0
FFRDC	28	17	60.7	28	17	60.7
NIH IRP	24	24	100.0	na	na	na

na = not applicable.

ECDS = Early Career Doctorates Survey; FFRDC = federally funded research and development center; NIH IRP = National Institutes of Health Intramural Research Program.

Note(s):
All percentages are unweighted and based on the number of institutions within the row under consideration. Due to low response rates and the resulting potential for nonresponse bias in subpopulation estimates, data for the medical schools and centers and the NIH IRP strata are excluded from published tables and figures. However, for research purposes, restricted-use data are available that includes responses from early career doctorates working at medical schools and centers and the NIH IRP.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE A-2

Stage 2 response rates, by institution type, public ECDS sample: 2017

(Number and percent)

Institution type	Public ECDS sample		
	Total sample size	Number of respondents	Unweighted response rate[a]
Overall	15,465	8,713	65.1
Academic institution	14,489	8,030	64.5
Very high research activity university	6,631	3,404	61.1
High research activity university	3,359	1,895	66.1
Other college or university	4,499	2,731	68.4
FFRDC	976	683	73.4

ECDS = Early Career Doctorates Survey; FFRDC = federally funded research and development center.

[a] Calculated using American Association for Public Opinion Research response rate 3.

Note(s):
All percentages are unweighted. Detail may not sum to totals because of rounding.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017.

TABLE A-3

ECDS field taxonomy: 2017

(Number)

Field	Field included in data tables[a]	Code	Variable level	Number of CIP codes reported to ECDS
Science and engineering	X	1	1	489
Biological, agricultural, and environmental life sciences	X	10	2	151
Agricultural, and environmental life sciences	X	11	3	62
Agricultural sciences		12	4	43
Natural resources and conservation		13	4	19
Biological and biomedical sciences	X	15	3	89
Engineering	X	30	2	58
Engineering, general		31	4	3
Bioengineering and biomedical engineering		32	4	7
Chemical engineering		33	4	11
Civil engineering		34	4	8
Electrical, electronics, communications, and computer engineering		35	4	2
Mechanical engineering		36	4	24
Engineering, other		39	4	3
Mathematics and computer sciences	X	40	2	39
Mathematics and statistics	X	41	3	21
Computer and information sciences	X	49	3	18
Multidisciplinary fields and science and engineering related fields	X	50	2	72
Multidisciplinary fields		51	4	21
Science and engineering related		52	4	51
Physical sciences, geosciences, atmospheric sciences, and ocean sciences	X	60	2	46
Physical sciences		61	4	30
Geosciences, atmospheric sciences, and ocean sciences		66	4	16
Psychology and social sciences	X	70	2	123
Psychology	X	71	3	26
Social sciences	X	80	3	97
Health	X	2	1	209
Health sciences, except medicine		110	2	145
Medicine		120	2	64
Non-science and engineering	X	3	1	392
Education	X	210	2	92
Humanities	X	220	2	84
Other non-science and engineering	X	230	2	216
Business management and administration		231	4	63
Communication and communications technologies		232	4	26
Law		233	4	13
Social work		234	4	58
Visual and performing arts		235	4	3
Other non-science and engineering		239	4	53

CIP = Classification of Instructional Programs; ECDS = Early Career Doctorates Survey; TOD = taxonomy of disciplines.

[a] Broad field headings are reported on the data tables; detailed fields are coded but not included in the data tables. A full CIP-TOD-ECDS crosswalk is available upon request.

Source(s):
National Center for Science and Engineering Statistics, Early Career Doctorates Survey, 2017

Note

1 See response rate calculations 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.

References

Cox BG. 1980. The weighted sequential hot deck imputation procedure. In *Proceedings of the American Statistical Association, Section on Survey Research Methods,* pp. 721–6.

Iannacchione V. 1982. Weighted sequential hot deck imputation macros. In *Seventh Annual SAS User's Group International Conference,* San Francisco.

Wolter KM. 2007. *Introduction to Variance Estimation.* Springer, New York.

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