

TABLE 1-10c

## Doctorate-holding nonfaculty researchers in engineering broad fields: 1979–2022

(Number)

Year	Total	Aerospace, aeronautical, and astronautical engineering	Biological, biomedical, and biosystems engineering	Chemical, petroleum, and chemical-related engineering	Civil, environmental, transportation and related engineering fields <sup>a</sup>	Electrical, electronics, communications and computer engineering	Industrial, manufacturing, systems engineering and operations research	Mechanical engineering	Metallurgical, mining, materials and related engineering fields <sup>b</sup>	Other engineering <sup>c</sup>
1979	273	18	6	38	25	65	3	45	30	43
1980	423	31	4	51	38	77	14	68	80	60
1981	503	8	3	75	30	81	4	113	96	93
1982	670	26	9	96	114	74	27	149	98	77
1983	631	24	8	54	86	127	10	128	97	97
1984	589	22	12	66	51	149	9	86	100	94
1985	615	21	14	83	31	149	3	112	131	71
1986	521	34	5	76	33	88	2	84	129	70
1987	443	28	6	51	38	62	13	85	97	63
1988	566	21	6	78	39	115	7	107	124	69
1989	581	14	18	76	37	114	11	89	120	102
1990	609	24	12	82	51	104	21	127	104	84
1991	659	26	16	74	54	121	20	113	150	85
1992	737	39	26	160	52	123	17	97	133	90
1993	805	69	25	144	67	135	8	116	147	94
1994	825	66	36	104	54	159	6	135	141	124
1995	789	80	26	81	66	175	3	108	123	127
1996	731	86	21	92	70	144	2	108	102	106
1997	848	84	31	163	66	168	8	109	86	133
1998	810	68	34	155	61	152	5	109	121	105
1999	940	87	58	151	81	169	5	127	117	145
2000	896	39	42	120	131	145	7	176	109	127
2001	801	15	36	97	98	118	12	133	107	185
2002	903	17	43	101	118	131	22	121	109	241
2003	952	30	49	100	98	172	11	125	149	218
2004	1,043	60	67	101	111	175	26	175	179	149
2005	946	54	58	89	113	178	24	165	128	137
2006	1,118	66	65	168	134	158	41	170	144	172
2007old <sup>a</sup>	1,298	29	91	155	141	304	32	199	152	195
2007new <sup>a</sup>	1,310	29	91	163	143	310	27	199	153	195
2008	1,419	41	89	188	161	283	67	193	134	263
2009	1,737	40	153	241	181	296	76	246	181	323
2010 <sup>d,e</sup>	2,406	58	250	288	256	395	108	355	231	465
2011 <sup>e</sup>	2,312	35	247	240	278	406	87	318	237	464
2012	2,497	49	295	251	298	405	70	389	255	485
2013	2,494	40	238	304	296	431	77	403	283	422
2014old <sup>f</sup>	2,744	43	322	339	313	459	90	437	287	454
2014new <sup>f</sup>	2,745	43	322	339	313	459	90	438	287	454
2015	2,929	67	289	320	364	492	150	425	315	507
2016	3,155	77	311	354	420	560	162	393	376	502
2017old <sup>b</sup>	na	na	na	na	na	na	na	na	na	na
2017new <sup>b</sup>	3,274	102	451	340	422	557	119	458	233	592
2018	3,570	115	491	337	414	588	105	489	267	764
2019	3,909	124	545	410	492	637	137	531	303	730
2020	3,921	149	525	330	488	706	155	469	299	800
2021	3,992	144	589	307	479	755	107	529	259	823

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Year	Total	Aerospace, aeronautical, and astronautical engineering	Biological, biomedical, and biosystems engineering	Chemical, petroleum, and chemical-related engineering	Civil, environmental, transportation and related engineering fields <sup>a</sup>	Electrical, electronics, communications and computer engineering	Industrial, manufacturing, systems engineering and operations research	Mechanical engineering	Metallurgical, mining, materials and related engineering fields <sup>b</sup>	Other engineering <sup>c</sup>
2022	4,355	153	685	313	569	734	197	527	280	897

na = not applicable; data were not collected at this level of detail in the year shown.

<sup>a</sup> In 2007, eligible fields were reclassified, newly eligible fields were added, and the survey was redesigned to improve coverage and coding of eligible units. "2007new" presents data as collected in 2007; "2007old" shows data as they would have been collected in prior years. Architecture is reported as a separate field of engineering in 2007new; data were reported under civil engineering in 2007old and previous years. See appendix A in <https://www.nsf.gov/statistics/nsf10307/> for more detail.

<sup>b</sup> As part of the 2017 Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS) redesign, the GSS taxonomy was changed to align with the National Center for Science and Engineering Statistics (NCSES) Taxonomy of Disciplines (TOD), thus increasing comparability with other NCSES surveys. As a result, some eligible fields were reclassified and a small number of fields became fully or partially ineligible. Comparisons to prior years should use the 2017old estimates and should be limited to broad areas of study—detailed field comparisons are not recommended. Materials sciences was reported as part of metallurgical and materials engineering from 2011–16; starting in 2017, materials sciences is reported as part of physical sciences, nanotechnology was reported as part of the science detailed field multidisciplinary and interdisciplinary studies from 2007–16; and starting in 2017, architecture was removed.

<sup>c</sup> Other engineering includes agricultural engineering; engineering mechanics, science, and physics; nuclear engineering; engineering, other; and, from 2007new to 2017old, architecture. Architecture was reported under civil engineering in 2007old and previous years.

<sup>d</sup> In 2010, the postdoctoral appointee (postdoc) and nonfaculty researcher (NFR) section of the survey was expanded and significant effort was made to ensure that appropriate personnel were providing postdoc and NFR data. Thus, it is unclear how much of the increases in 2010 and later years over 2009 and prior years are from growth in postdocs and NFRs and how much are from improved data collection. More information on the changes to the data collection is available at <https://www.nsf.gov/statistics/infbrief/nsf13334/>.

<sup>e</sup> Postdoc and NFR data from 2010 and 2011 were reimputed following the 2012 data collection; these data supersede those contained in previous reports.

<sup>f</sup> In 2014, the survey frame was updated following a comprehensive frame evaluation study. The study identified potentially eligible but not previously surveyed academic institutions in the United States with master's- or doctorate-granting programs in science, engineering, and health. A total of 151 newly eligible institutions were added, and two private for-profit institutions offering mostly practitioner-based graduate degrees were determined to be ineligible. For more information, see <https://www.nsf.gov/statistics/2016/nsf16314>.

**Note(s):**

For doctorate-holding NFRs, "field" refers to the field of the unit that reports information on this group to the GSS. Prior to 2020, there were no broad fields in engineering, and this table includes all engineering detailed fields. All fields have been moved to match the current broad field organization. Sum of the broad fields may not add to total because of rounding. For more information on the mapping of GSS fields and codes, see technical table A-17.

**Source(s):**

National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering.