

TABLE 10

Federally financed higher education R&D expenditures, by R&D field: FYs 2010–19

(Dollars in thousands)

Field	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
All R&D fields	37,477,582	40,768,251	40,142,223	39,445,931	37,961,118	37,846,802	38,771,218	40,223,757	41,836,102	44,455,265
Science	30,791,579	33,373,047	32,497,010	31,764,827	30,399,632	30,316,611	31,082,616	32,188,365	33,503,484	35,551,659
Computer and information sciences	1,175,343	1,294,280	1,360,430	1,552,301	1,390,779	1,419,743	1,442,869	1,497,480	1,630,112	1,794,548
Geosciences, atmospheric sciences, and ocean sciences	2,013,754	2,181,206	2,203,399	2,094,690	2,049,514	2,065,967	1,991,824	2,042,331	2,048,328	2,067,292
Atmospheric science and meteorology	338,687	383,740	389,095	397,620	389,374	453,710	513,275	503,347	485,737	460,463
Geological and earth sciences	735,094	799,906	818,785	767,770	740,609	699,060	604,525	685,691	697,996	676,742
Ocean sciences and marine sciences	666,930	705,852	673,888	662,219	663,079	647,119	665,139	656,802	649,212	698,401
Geosciences, atmospheric sciences, and ocean sciences nec	273,043	291,708	321,631	267,081	256,452	266,078	208,885	196,491	215,383	231,686
Life sciences	21,702,125	23,663,408	22,753,602	22,227,278	21,269,620	21,163,294	21,789,011	22,743,367	23,858,579	25,443,994
Agricultural sciences	957,710	1,042,740	1,137,729	1,111,006	1,083,562	1,095,769	976,109	976,822	950,573	989,573
Biological and biomedical sciences	7,579,196	8,213,534	7,741,440	7,604,786	7,238,745	7,103,518	7,698,393	8,178,673	8,569,283	9,260,282
Health sciences	12,068,659	13,184,595	12,681,515	12,287,408	11,743,066	11,723,715	12,098,365	12,685,602	13,391,996	14,185,253
Natural resources and conservation ^a	na	na	na	na	na	na	315,446	270,289	318,725	367,864
Life sciences nec	1,096,560	1,222,539	1,192,918	1,224,078	1,204,247	1,240,292	700,698	631,981	628,002	641,022
Mathematics and statistics	417,775	458,966	490,534	464,608	441,414	424,550	444,294	437,036	456,808	466,937
Physical sciences	3,384,275	3,527,330	3,474,586	3,311,037	3,155,549	3,111,705	3,285,958	3,378,325	3,466,556	3,691,334
Astronomy and astrophysics	405,954	408,963	535,180	400,440	380,907	403,053	417,939	441,548	454,491	514,432
Chemistry	1,200,120	1,243,767	1,213,495	1,134,945	1,080,365	1,095,125	1,097,382	1,097,782	1,129,877	1,182,806
Materials science ^a	na	na	na	na	na	na	111,806	142,472	162,048	165,880
Physics	1,557,421	1,660,377	1,532,612	1,567,937	1,509,986	1,463,153	1,523,550	1,543,180	1,564,853	1,657,419
Physical sciences nec	220,780	214,223	193,299	207,715	184,291	150,374	135,281	153,343	155,287	170,797
Psychology	758,520	835,448	859,500	776,402	752,567	763,689	764,266	762,377	756,683	786,985
Social sciences	901,009	947,176	915,874	897,604	917,748	921,819	899,220	932,481	937,744	936,238
Anthropology ^a	na	na	na	na	na	na	39,602	38,715	43,464	42,816
Economics	127,858	148,737	144,446	137,236	138,823	149,580	112,347	110,606	102,034	91,072
Political science and government	152,547	148,643	141,267	143,375	145,673	136,493	103,661	103,880	98,309	86,244
Sociology, demography, and population studies	226,462	232,834	247,739	237,479	251,832	262,275	268,772	280,548	285,154	289,433
Social sciences nec	394,142	416,962	382,422	379,514	381,420	373,471	374,838	398,732	408,783	426,673
Sciences nec	438,778	465,233	439,085	440,907	422,441	445,844	465,174	394,968	348,674	364,331
Engineering	5,718,852	6,275,548	6,442,986	6,499,507	6,424,577	6,458,952	6,582,290	6,828,226	7,092,526	7,667,373
Aerospace, aeronautical, and astronautical engineering	466,991	504,536	501,722	513,134	474,623	516,051	623,571	659,840	678,087	820,512
Bioengineering and biomedical engineering	470,432	515,611	552,555	556,651	606,943	606,696	651,401	725,035	791,607	879,674
Chemical engineering	421,269	490,918	504,753	478,542	471,824	463,033	467,663	471,877	461,626	498,380
Civil engineering	460,880	544,992	570,303	578,390	577,964	570,426	591,735	557,559	590,837	620,862
Electrical, electronic, and communications engineering	1,373,311	1,511,458	1,601,917	1,642,771	1,742,336	1,771,589	1,742,704	1,891,256	1,980,852	2,049,254
Industrial and manufacturing engineering ^a	na	na	na	na	na	na	146,848	186,246	306,696	366,535

TABLE 10

Federally financed higher education R&D expenditures, by R&D field: FYs 2010–19

(Dollars in thousands)

Field	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mechanical engineering	953,244	1,032,641	1,035,551	1,061,270	946,802	957,354	860,885	937,850	993,236	1,055,725
Metallurgical and materials engineering	429,412	455,722	462,246	465,657	494,405	501,195	442,377	440,746	464,475	483,774
Engineering nec	1,143,313	1,219,670	1,213,939	1,203,092	1,109,680	1,072,608	1,055,106	957,817	825,110	892,657
Non-S&E	967,151	1,119,656	1,202,227	1,181,597	1,136,909	1,071,239	1,106,312	1,207,166	1,240,092	1,236,233
Business management and business administration	86,440	99,661	96,659	95,227	77,257	69,818	68,286	69,071	71,623	73,296
Communication and communications technologies	41,339	53,266	53,337	51,060	54,337	42,463	36,765	61,292	34,244	35,467
Education	535,744	632,117	689,060	666,586	663,592	644,138	620,166	646,320	673,096	662,423
Humanities	57,510	61,420	67,692	76,804	75,116	59,964	57,172	59,052	50,002	49,747
Law	19,338	27,388	24,575	22,522	23,734	24,416	26,082	33,023	51,121	31,585
Social work	94,422	105,661	109,359	111,693	109,184	101,669	95,303	110,686	114,302	133,080
Visual and performing arts	4,843	6,521	10,435	7,039	9,050	8,603	8,585	8,334	10,798	9,091
Non-S&E nec	127,515	133,622	151,110	150,666	124,639	120,168	193,953	219,388	234,906	241,544

na = not applicable; separate data for natural resources and conservation, materials science, anthropology, and industrial and manufacturing engineering were not collected prior to FY 2016.

nec = not elsewhere classified; S&E = science and engineering.

^a Prior to FY 2016, expenditures for natural resources and conservation, materials science, anthropology, and industrial and manufacturing engineering were not collected separately. See the FY 2016 Technical Notes, Appendix A (<https://ncesdata.nsf.gov/herd/2016>) for information detailing where these fields were previously reported.

Note(s):

FY 2016 R&D expenditure amounts in various fields may show increases or decreases from amounts reported in FY 2015 because of the reclassification of disciplines. See the FY 2016 Technical Notes, Appendix A (<https://ncesdata.nsf.gov/herd/2016>) for specific details about discipline changes.

Source(s):

National Center for Science and Engineering Statistics, Higher Education Research and Development Survey.