

TABLE 11

**Federally financed higher education R&D expenditures, by R&D field: FYs 2010–21**

(Dollars in thousands)

Field	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
All R&D fields	37,477,582	40,768,251	40,142,223	39,445,931	37,961,118	37,846,802	38,788,615	40,248,750	41,861,164	44,461,456	46,114,365	49,143,460
Science	30,791,579	33,373,047	32,497,010	31,764,798	30,400,058	30,316,969	31,093,059	32,204,140	33,519,672	35,550,465	36,757,298	39,063,689
Computer and information sciences	1,175,343	1,294,280	1,360,430	1,552,300	1,390,677	1,419,654	1,443,376	1,497,640	1,630,076	1,794,570	2,000,015	1,994,728
Geosciences, atmospheric sciences, and ocean sciences	2,013,754	2,181,206	2,203,399	2,094,769	2,049,449	2,065,928	1,991,778	2,042,334	2,048,305	2,067,239	2,109,698	2,145,163
Atmospheric science and meteorology	338,687	383,740	389,095	397,620	389,370	453,694	513,280	503,368	485,737	460,463	470,998	484,265
Geological and earth sciences	735,094	799,906	818,785	767,849	740,590	699,066	604,474	685,673	697,973	676,590	697,295	772,157
Ocean sciences and marine sciences	666,930	705,852	673,888	662,219	663,049	647,098	665,139	656,802	649,212	698,401	713,454	640,634
Geosciences, atmospheric sciences, and ocean sciences nec	273,043	291,708	321,631	267,081	256,440	266,070	208,885	196,491	215,383	231,785	227,951	248,107
Life sciences	21,702,125	23,663,408	22,753,602	22,227,173	21,270,352	21,163,876	21,795,284	22,749,784	23,864,977	25,436,404	26,232,263	28,452,956
Agricultural sciences	957,710	1,042,740	1,137,729	1,111,006	1,084,890	1,096,949	977,258	978,308	950,634	989,763	1,073,804	1,099,585
Biological and biomedical sciences	7,579,196	8,213,534	7,741,440	7,604,784	7,238,875	7,103,719	7,699,352	8,180,020	8,572,395	9,261,709	9,338,221	10,001,728
Health sciences	12,068,659	13,184,595	12,681,515	12,287,305	11,742,489	11,722,981	12,101,391	12,688,025	13,393,534	14,173,989	14,707,735	16,138,445
Natural resources and conservation <sup>a</sup>	na	na	na	na	na	na	316,604	271,470	320,412	369,968	410,797	429,905
Life sciences nec	1,096,560	1,222,539	1,192,918	1,224,078	1,204,098	1,240,227	700,679	631,961	628,002	640,975	701,706	783,293
Mathematics and statistics	417,775	458,966	490,534	464,608	441,383	424,522	444,392	437,047	456,793	467,027	485,574	475,827
Physical sciences	3,384,275	3,527,330	3,474,586	3,311,054	3,155,599	3,111,777	3,288,095	3,384,806	3,472,575	3,691,480	3,790,522	3,852,415
Astronomy and astrophysics	405,954	408,963	535,180	400,294	380,884	403,025	417,930	441,522	454,476	514,408	542,970	509,733
Chemistry	1,200,120	1,243,767	1,213,495	1,135,108	1,080,513	1,095,296	1,097,435	1,098,023	1,130,063	1,182,645	1,167,474	1,239,825
Materials science <sup>a</sup>	na	na	na	na	na	na	111,806	142,472	162,048	165,880	157,047	174,331
Physics	1,557,421	1,660,377	1,532,612	1,567,937	1,509,916	1,463,084	1,525,643	1,549,446	1,570,701	1,657,750	1,735,972	1,767,740
Physical sciences nec	220,780	214,223	193,299	207,715	184,286	150,372	135,281	153,343	155,287	170,797	187,059	160,786
Psychology	758,520	835,448	859,500	776,402	752,501	763,632	765,247	764,711	760,316	790,279	808,948	812,660
Social sciences	901,009	947,176	915,874	897,585	917,670	921,751	899,559	932,628	937,739	938,459	968,843	955,852
Anthropology <sup>a</sup>	na	na	na	na	na	na	39,602	38,712	43,461	43,001	38,891	29,533
Economics	127,858	148,737	144,446	137,236	138,806	149,567	112,576	110,739	102,145	91,716	120,818	137,555
Political science and government	152,547	148,643	141,267	143,356	145,662	136,482	103,691	103,870	98,301	86,705	78,387	86,443
Sociology, demography, and population studies	226,462	232,834	247,739	237,479	251,800	262,243	268,827	280,561	285,148	289,744	253,097	232,318

TABLE 11

**Federally financed higher education R&D expenditures, by R&D field: FYs 2010–21**

(Dollars in thousands)

Field	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Social sciences nec	394,142	416,962	382,422	379,514	381,402	373,459	374,863	398,746	408,684	427,293	477,650	470,003
Sciences nec	438,778	465,233	439,085	440,907	422,427	445,829	465,328	395,190	348,891	365,007	361,435	374,088
Engineering	5,718,852	6,275,548	6,442,986	6,499,575	6,424,206	6,458,636	6,583,093	6,828,730	7,093,674	7,668,193	8,121,089	8,714,829
Aerospace, aeronautical, and astronautical engineering	466,991	504,536	501,722	513,134	474,601	516,035	623,637	659,882	678,126	820,576	956,477	1,110,088
Bioengineering and biomedical engineering	470,432	515,611	552,555	556,651	606,940	606,681	651,534	725,241	791,996	879,999	906,111	960,152
Chemical engineering	421,269	490,918	504,753	478,542	471,558	462,813	467,519	471,749	461,480	498,223	521,895	572,307
Civil engineering	460,880	544,992	570,303	578,390	577,958	570,405	591,837	557,671	590,886	621,055	606,804	664,620
Electrical, electronic, and communications engineering	1,373,311	1,511,458	1,601,917	1,642,771	1,742,317	1,771,541	1,742,704	1,891,348	1,981,211	2,049,393	2,143,820	2,209,153
Industrial and manufacturing engineering <sup>a</sup>	na	na	na	na	na	na	147,192	186,352	306,768	366,712	384,571	384,142
Mechanical engineering	953,244	1,032,641	1,035,551	1,061,270	946,699	957,328	861,039	937,849	993,245	1,055,663	1,160,473	1,274,012
Metallurgical and materials engineering	429,412	455,722	462,246	465,657	494,403	501,180	442,377	440,746	464,475	483,774	504,486	559,447
Engineering nec	1,143,313	1,219,670	1,213,939	1,203,160	1,109,730	1,072,653	1,055,254	957,892	825,487	892,798	936,452	980,908
Non-S&E	967,151	1,119,656	1,202,227	1,181,558	1,136,854	1,071,197	1,112,463	1,215,880	1,247,818	1,242,798	1,235,978	1,364,942
Business management and business administration	86,440	99,661	96,659	95,268	77,292	69,856	68,284	69,111	71,786	73,187	74,136	97,277
Communication and communications technologies	41,339	53,266	53,337	51,060	54,334	42,461	36,764	61,311	34,258	35,637	39,758	39,337
Education	535,744	632,117	689,060	666,506	663,543	644,087	624,470	653,074	680,404	668,080	670,060	701,430
Humanities	57,510	61,420	67,692	76,804	75,113	59,961	57,171	59,051	50,006	49,812	53,690	56,658
Law	19,338	27,388	24,575	22,522	23,731	24,414	26,081	33,021	50,933	31,866	26,695	28,777
Social work	94,422	105,661	109,359	111,693	109,172	101,662	95,300	110,679	114,294	133,072	140,779	165,278
Visual and performing arts	4,843	6,521	10,435	7,039	9,049	8,603	8,585	8,334	10,798	9,105	15,121	11,476
Non-S&E nec	127,515	133,622	151,110	150,666	124,620	120,153	195,808	221,299	235,339	242,039	215,739	264,709

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.

<sup>a</sup> 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://ncsesdata.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://ncsesdata.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.