

TABLE 12

Nonfederally 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	23,809,028	24,506,142	25,586,784	27,567,207	29,237,972	30,703,080	32,979,234	34,898,363	37,161,992	39,026,015	40,186,034	40,579,987
Science	18,270,250	18,582,380	19,417,860	20,855,315	22,389,910	23,548,411	25,168,366	26,731,174	28,498,005	29,868,077	30,812,168	31,252,841
Computer and information sciences	462,704	448,206	461,891	516,198	538,467	543,701	636,568	694,706	767,655	842,784	925,710	957,195
Geosciences, atmospheric sciences, and ocean sciences	977,987	971,968	969,612	1,100,736	1,178,542	1,181,535	1,091,976	1,105,544	1,111,248	1,118,719	1,171,759	1,150,720
Atmospheric science and meteorology	90,667	97,535	87,634	95,840	112,263	120,219	113,396	120,136	122,304	129,922	141,786	140,314
Geological and earth sciences	348,875	342,724	350,160	395,998	418,856	414,661	393,608	398,414	433,950	444,710	462,551	470,182
Ocean sciences and marine sciences	354,927	343,778	351,584	389,199	408,322	403,045	432,824	441,832	412,190	402,367	422,569	394,885
Geosciences, atmospheric sciences, and ocean sciences nec	183,518	187,931	180,234	219,699	239,101	243,610	152,148	145,162	142,804	141,720	144,853	145,339
Life sciences	13,282,124	13,674,114	14,446,569	15,337,267	16,688,795	17,609,817	19,074,192	20,349,294	21,741,809	22,792,195	23,390,074	23,911,640
Agricultural sciences	2,053,440	2,074,100	2,162,369	2,241,442	2,307,493	2,385,336	2,317,228	2,296,289	2,356,617	2,437,010	2,551,644	2,449,311
Biological and biomedical sciences	3,367,260	3,641,934	3,870,192	4,076,229	4,467,967	4,601,372	5,330,871	5,543,219	5,944,645	6,129,121	6,426,307	6,555,473
Health sciences	7,199,426	7,213,782	7,648,898	8,166,629	8,966,946	9,575,996	10,286,740	11,302,772	12,381,089	13,093,148	13,293,715	13,746,283
Natural resources and conservation ^a	na	na	na	na	na	na	376,714	420,183	459,114	471,909	490,870	504,860
Life sciences nec	661,998	744,298	765,110	852,967	946,389	1,047,113	762,639	786,831	600,344	661,007	627,538	655,713
Mathematics and statistics	174,425	181,505	183,927	206,193	216,485	216,352	235,102	263,213	293,565	302,046	314,748	297,108
Physical sciences	1,237,497	1,241,486	1,235,539	1,335,855	1,460,817	1,547,468	1,599,893	1,665,351	1,759,652	1,859,261	1,881,284	1,888,215
Astronomy and astrophysics	167,275	174,884	171,364	158,341	186,138	223,564	203,808	207,291	213,751	220,579	237,386	231,394
Chemistry	548,345	539,837	535,409	569,015	643,750	662,252	675,971	693,500	736,104	782,821	762,200	759,721
Materials science ^a	na	na	na	na	na	na	60,465	85,353	92,399	93,436	95,474	111,600
Physics	441,311	447,963	453,342	529,217	546,356	584,584	594,907	606,249	635,919	669,284	698,460	695,591
Physical sciences nec	80,566	78,802	75,424	79,282	84,573	77,068	64,742	72,958	81,479	93,141	87,764	89,909
Psychology	319,135	323,732	319,823	351,950	390,872	420,006	455,971	479,926	499,137	536,072	551,956	513,370
Social sciences	1,098,933	1,115,831	1,137,782	1,275,647	1,294,341	1,397,280	1,465,224	1,621,937	1,784,038	1,866,695	1,984,702	1,886,181
Anthropology ^a	na	na	na	na	na	na	56,330	72,214	74,768	81,384	80,978	80,013
Economics	225,032	238,299	238,959	271,068	289,667	306,913	285,790	323,258	353,755	366,370	438,007	411,577
Political science and government	222,356	222,051	248,807	284,147	281,006	322,783	280,303	308,233	339,768	361,045	347,389	339,218
Sociology, demography, and population studies	193,433	200,650	213,272	244,805	253,159	262,440	234,783	271,292	323,575	320,358	341,591	320,233

TABLE 12

Nonfederally 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	458,112	454,831	436,744	475,627	470,509	505,144	608,018	646,940	692,172	737,538	776,737	735,140
Sciences nec	717,445	625,538	662,717	731,469	621,591	632,252	609,440	551,203	540,901	550,305	591,935	648,412
Engineering	3,606,870	3,757,042	3,841,125	4,234,582	4,551,861	4,611,439	4,790,070	5,082,546	5,269,974	5,546,435	5,586,732	5,578,658
Aerospace, aeronautical, and astronautical engineering	168,243	163,221	160,722	176,419	187,831	218,118	259,463	330,841	332,376	349,593	336,975	341,876
Bioengineering and biomedical engineering	274,845	301,778	319,362	327,770	344,208	397,229	434,660	495,439	551,757	571,160	563,927	600,229
Chemical engineering	399,894	422,987	398,860	431,871	435,516	451,680	417,143	462,778	469,559	479,355	479,563	451,994
Civil engineering	645,879	663,600	662,641	718,582	678,913	716,864	738,122	744,643	763,889	811,894	817,976	817,757
Electrical, electronic, and communications engineering	676,981	695,436	709,748	766,053	737,438	720,830	769,825	835,110	862,585	888,487	908,025	871,210
Industrial and manufacturing engineering ^a	na	na	na	na	na	na	89,486	164,729	208,013	189,643	202,337	189,773
Mechanical engineering	505,138	524,251	514,600	586,373	557,473	557,308	574,846	597,970	637,296	649,298	656,940	607,539
Metallurgical and materials engineering	273,920	283,170	295,721	346,583	708,660	600,737	301,628	294,953	298,220	308,596	314,179	281,749
Engineering nec	661,970	702,599	779,471	880,931	901,822	948,673	1,204,897	1,156,083	1,146,279	1,298,409	1,306,810	1,416,531
Non-S&E	1,931,908	2,166,720	2,327,799	2,477,310	2,296,201	2,543,230	3,020,798	3,084,643	3,394,013	3,611,503	3,787,134	3,748,488
Business management and business administration	283,575	300,715	346,420	380,757	405,601	499,860	574,107	656,173	712,608	794,979	806,431	836,743
Communication and communications technologies	89,057	100,477	106,583	97,840	112,562	126,051	129,645	141,228	157,341	171,091	150,494	146,666
Education	457,844	488,649	544,377	554,858	581,523	648,579	715,770	731,204	823,189	853,601	932,186	915,275
Humanities	202,864	251,612	271,941	309,955	327,096	370,213	385,967	433,575	454,109	488,262	509,710	500,036
Law	78,771	97,391	106,939	150,957	125,504	150,278	158,258	190,803	215,444	223,928	240,960	253,885
Social work	82,909	89,006	89,687	100,638	116,890	112,543	116,249	124,616	130,819	152,574	166,327	153,995
Visual and performing arts	63,874	70,837	74,161	80,799	86,820	92,078	125,284	116,573	126,364	149,866	158,070	168,087
Non-S&E nec	673,014	768,033	787,691	801,506	540,205	543,628	815,518	690,471	774,139	777,202	822,956	773,801

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://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.