

TABLE 11
Nonfederally financed higher education R&D expenditures, by R&D field: FYs 2010–20

(Dollars in thousands)

Field	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
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	34,898,347	37,163,132	39,051,622	40,152,349
Science	18,270,250	18,582,380	19,417,860	20,855,631	22,390,105	23,548,547	25,168,366	26,731,245	28,499,483	29,881,504	30,788,904
Computer and information sciences	462,704	448,206	461,891	516,198	538,482	543,712	636,568	694,713	767,663	844,455	922,212
Geosciences, atmospheric sciences, and ocean sciences	977,987	971,968	969,612	1,100,733	1,178,558	1,181,547	1,091,976	1,105,550	1,111,254	1,118,724	1,172,186
Atmospheric science and meteorology	90,667	97,535	87,634	95,840	112,264	120,222	113,396	120,136	122,304	129,922	141,732
Geological and earth sciences	348,875	342,724	350,160	395,974	418,852	414,657	393,608	398,420	433,956	444,715	462,636
Ocean sciences and marine sciences	354,927	343,778	351,584	389,199	408,333	403,054	432,824	441,832	412,190	402,367	423,173
Geosciences, atmospheric sciences, and ocean sciences nec	183,518	187,931	180,234	219,720	239,109	243,614	152,148	145,162	142,804	141,720	144,645
Life sciences	13,282,124	13,674,114	14,446,569	15,337,944	16,689,123	17,610,046	19,074,192	20,349,430	21,743,359	22,798,455	23,386,506
Agricultural sciences	2,053,440	2,074,100	2,162,369	2,241,442	2,307,639	2,385,402	2,317,228	2,296,289	2,356,617	2,437,010	2,554,105
Biological and biomedical sciences	3,367,260	3,641,934	3,870,192	4,076,478	4,467,923	4,601,339	5,330,871	5,543,207	5,943,763	6,129,101	6,421,959
Health sciences	7,199,426	7,213,782	7,648,898	8,166,850	8,967,141	9,576,169	10,286,740	11,302,920	12,383,083	13,098,967	13,292,911
Natural resources and conservation ^a	na	na	na	na	na	na	376,714	420,183	459,114	471,909	490,577
Life sciences nec	661,998	744,298	765,110	853,174	946,420	1,047,136	762,639	786,831	600,782	661,468	626,954
Mathematics and statistics	174,425	181,505	183,927	206,193	216,493	216,357	235,102	263,216	293,568	302,954	312,716
Physical sciences	1,237,497	1,241,486	1,235,539	1,335,717	1,460,755	1,547,424	1,599,893	1,665,321	1,759,619	1,860,132	1,877,809
Astronomy and astrophysics	167,275	174,884	171,364	158,341	186,171	223,569	203,808	207,294	213,754	220,582	237,355
Chemistry	548,345	539,837	535,409	568,936	643,696	662,223	675,971	693,481	736,083	783,252	760,029
Materials science ^a	na	na	na	na	na	na	60,465	85,353	92,399	93,436	95,299
Physics	441,311	447,963	453,342	529,157	546,313	584,563	594,907	606,235	635,904	669,562	697,551
Physical sciences nec	80,566	78,802	75,424	79,283	84,575	77,069	64,742	72,958	81,479	93,300	87,575
Psychology	319,135	323,732	319,823	351,867	390,822	419,971	455,971	479,903	499,111	536,742	548,516
Social sciences	1,098,933	1,115,831	1,137,782	1,275,503	1,294,263	1,397,226	1,465,224	1,621,902	1,784,000	1,869,737	1,978,060
Anthropology ^a	na	na	na	na	na	na	56,330	72,213	74,766	81,399	80,482
Economics	225,032	238,299	238,959	270,917	289,557	306,838	285,790	323,215	353,709	368,100	440,731
Political science and government	222,356	222,051	248,807	284,147	281,011	322,788	280,303	308,237	339,772	361,728	346,805
Sociology, demography, and population studies	193,433	200,650	213,272	244,805	253,162	262,445	234,783	271,297	323,581	320,672	338,541
Social sciences nec	458,112	454,831	436,744	475,634	470,533	505,155	608,018	646,940	692,172	737,838	771,501
Sciences nec	717,445	625,538	662,717	731,476	621,609	632,264	609,440	551,210	540,909	550,305	590,899
Engineering	3,606,870	3,757,042	3,841,125	4,234,411	4,551,866	4,611,442	4,790,070	5,082,550	5,269,976	5,547,860	5,571,865
Aerospace, aeronautical, and astronautical engineering	168,243	163,221	160,722	176,419	187,833	218,122	259,463	330,841	332,376	349,593	337,964
Bioengineering and biomedical engineering	274,845	301,778	319,362	327,770	344,214	397,236	434,660	495,439	551,757	571,160	562,084
Chemical engineering	399,894	422,987	398,860	431,871	435,535	451,688	417,143	462,778	469,559	479,355	477,554
Civil engineering	645,879	663,600	662,641	718,582	678,924	716,880	738,122	744,643	763,889	812,169	815,899
Electrical, electronic, and communications engineering	676,981	695,436	709,748	766,053	737,453	720,845	769,825	835,147	862,626	888,799	905,023

TABLE 11

Nonfederally financed higher education R&D expenditures, by R&D field: FYs 2010–20

(Dollars in thousands)

Field	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Industrial and manufacturing engineering ^a	na	na	na	na	na	na	89,486	164,729	208,013	189,750	203,332
Mechanical engineering	505,138	524,251	514,600	586,373	557,491	557,319	574,846	597,995	637,323	649,974	652,799
Metallurgical and materials engineering	273,920	283,170	295,721	346,583	708,668	600,751	301,628	294,953	298,220	308,596	312,082
Engineering nec	661,970	702,599	779,471	880,760	901,748	948,601	1,204,897	1,156,025	1,146,213	1,298,464	1,305,128
Non-S&E	1,931,908	2,166,720	2,327,799	2,477,165	2,296,001	2,543,091	3,020,798	3,084,552	3,393,673	3,622,258	3,791,580
Business management and business administration	283,575	300,715	346,420	380,864	405,589	499,855	574,107	656,170	712,367	798,214	804,595
Communication and communications technologies	89,057	100,477	106,583	97,840	112,564	126,054	129,645	141,229	157,342	171,275	150,983
Education	457,844	488,649	544,377	554,858	581,546	648,593	715,770	731,216	823,202	858,413	936,935
Humanities	202,864	251,612	271,941	309,955	327,105	370,220	385,967	433,575	454,109	490,171	508,852
Law	78,771	97,391	106,939	150,957	125,510	150,280	158,258	190,803	215,444	223,930	240,868
Social work	82,909	89,006	89,687	100,638	116,896	112,546	116,249	124,616	130,819	152,774	166,309
Visual and performing arts	63,874	70,837	74,161	80,726	86,767	92,041	125,284	116,548	126,336	150,377	156,465
Non-S&E nec	673,014	768,033	787,691	801,327	540,024	543,502	815,518	690,395	774,054	777,104	826,573

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.