



APPENDIX TABLE 5-5 

### Higher education R&D expenditures, by field: FYs 2007–16

(Thousands of dollars)

Field <sup>a</sup>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
All fields	51,590,017	54,113,750	57,288,415	61,286,610	65,274,393	65,729,007	67,013,138	67,196,537	68,566,890	71,833,308
Science	41,977,651	43,914,300	46,214,473	49,061,924	51,955,472	51,914,454	52,621,027	52,787,322	53,873,278	56,290,662
Computer and information sciences	1,430,660	1,471,454	1,600,447	1,638,047	1,742,486	1,822,319	2,068,518	1,928,474	1,962,827	2,077,884
Geosciences, atmospheric sciences, and ocean sciences	2,681,473	2,798,750	2,923,404	2,991,760	3,153,182	3,172,918	3,195,420	3,227,956	3,247,416	3,087,774
Atmospheric science and meteorology	446,184	423,055	416,826	429,354	481,275	476,729	493,460	501,639	573,932	626,518
Geological and earth sciences	910,886	950,631	1,019,429	1,083,993	1,142,644	1,168,945	1,163,783	1,159,333	1,113,619	999,351
Ocean sciences and marine sciences	992,484	1,051,136	1,077,634	1,021,856	1,049,629	1,025,396	1,051,383	1,071,419	1,050,173	1,097,864
Geosciences, atmospheric sciences, and ocean sciences nec	331,919	373,928	409,515	456,557	479,634	501,848	486,794	495,565	509,692	364,041
Life sciences	29,805,328	31,192,916	32,778,944	34,984,282	37,337,522	37,200,135	37,565,751	37,955,182	38,787,071	40,887,850
Agricultural sciences	2,913,260	2,995,518	3,055,512	3,011,149	3,116,840	3,300,098	3,352,448	3,390,039	3,480,029	3,293,092
Biological and biomedical sciences	9,207,593	9,760,099	10,146,059	10,946,424	11,855,468	11,611,632	11,681,425	11,704,653	11,702,462	13,048,981
Health sciences	16,553,616	17,254,161	18,229,453	19,268,159	20,398,377	20,330,413	20,454,602	20,710,804	21,304,898	22,393,716
Natural resources and conservation	na	na	na	na	na	na	na	na	na	689,725
Life sciences nec	1,130,859	1,183,138	1,347,920	1,758,550	1,966,837	1,957,992	2,077,276	2,149,686	2,299,682	1,462,336
Mathematics and statistics	573,070	619,854	546,915	592,184	640,460	674,445	670,802	657,927	641,083	681,661



Field <sup>a</sup>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Physical sciences	3,863,269	3,931,833	4,282,795	4,621,772	4,768,816	4,709,977	4,646,742	4,616,378	4,659,279	4,893,565
Astronomy and astrophysics	467,604	539,112	578,406	573,229	583,847	706,544	558,781	567,101	626,652	622,008
Chemistry	1,460,415	1,486,721	1,582,562	1,748,465	1,783,604	1,748,885	1,703,899	1,724,061	1,757,423	1,775,071
Materials science	na	na	na	na	na	na	na	na	na	172,086
Physics	1,615,766	1,606,997	1,869,890	1,998,732	2,108,340	1,985,825	2,097,064	2,056,349	2,047,761	2,124,098
Physical sciences nec	319,484	299,003	251,937	301,346	293,025	268,723	286,998	268,867	227,443	200,302
Psychology	872,547	925,069	972,319	1,077,685	1,159,199	1,179,289	1,128,267	1,141,662	1,181,909	1,218,721
Social sciences	1,803,115	1,949,741	2,080,953	1,999,971	2,063,036	2,053,640	2,173,147	2,215,693	2,317,108	2,366,571
Anthropology	na	na	na	na	na	na	na	na	na	96,505
Economics	349,313	398,730	379,720	352,905	387,050	383,405	408,163	428,544	456,561	396,393
Political science and government	348,310	339,294	368,887	374,913	370,704	390,058	427,523	426,781	459,416	385,245
Sociology, demography, and population studies	397,748	403,226	408,444	419,918	433,498	461,011	482,293	505,026	524,763	504,594
Social sciences nec	707,744	808,491	923,902	852,235	871,784	819,166	855,168	855,342	876,368	983,834
Sciences nec	948,189	1,024,683	1,028,696	1,156,223	1,090,771	1,101,731	1,172,380	1,044,050	1,076,585	1,076,636
Engineering	7,517,262	7,957,504	8,648,525	9,325,722	10,032,590	10,284,111	10,733,918	10,976,774	11,072,232	11,381,727
Aerospace, aeronautical and astronautical	471,097	537,251	613,828	635,234	667,757	662,444	689,553	662,456	734,104	883,260
Bioengineering and biomedical	539,137	601,908	648,099	745,277	817,389	871,917	884,421	951,157	1,003,766	1,084,355
Chemical	598,944	655,603	695,842	821,163	913,905	903,613	910,413	907,697	915,204	885,273



Field <sup>a</sup>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Civil	862,260	924,620	980,451	1,106,759	1,208,592	1,232,944	1,296,972	1,256,881	1,287,446	1,331,155
Electrical, electronic, and communications	1,636,983	1,704,953	1,844,482	2,050,292	2,206,894	2,311,665	2,408,824	2,479,789	2,492,317	2,517,147
Industrial and manufacturing	na	na	na	na	na	na	na	na	na	239,078
Mechanical	1,126,726	1,162,428	1,243,910	1,458,382	1,556,892	1,550,151	1,647,643	1,504,293	1,514,753	1,435,828
Metallurgical and materials	632,941	646,523	688,225	703,332	738,892	757,967	812,240	1,203,073	1,102,027	771,683
Engineering nec	1,649,174	1,724,218	1,933,688	1,805,283	1,922,269	1,993,410	2,083,852	2,011,428	2,022,615	2,233,948
Non-S&E fields <sup>b</sup>	2,095,104	2,241,946	2,425,417	2,898,964	3,286,331	3,530,442	3,658,193	3,432,441	3,621,380	4,160,919
Business management and business administration	276,280	329,931	343,916	370,005	400,371	443,084	476,106	482,937	569,811	649,856
Communications and communications technologies	90,832	89,203	107,484	130,393	153,741	159,929	148,901	166,910	168,525	168,861
Education	905,247	868,830	915,976	993,574	1,120,759	1,233,956	1,221,460	1,244,254	1,291,062	1,352,650
Humanities	241,683	246,713	255,289	260,338	313,022	339,633	386,753	402,244	430,210	435,079
Law	74,809	90,907	107,966	98,105	124,776	131,529	173,479	149,254	174,734	190,443
Social work	93,540	123,984	138,283	177,329	194,665	199,308	212,331	226,094	214,381	208,969
Visual and performing arts	46,155	59,285	72,867	68,709	77,353	84,612	87,768	95,822	100,656	142,445
Non-S&E nec	366,448	432,965	483,636	800,511	901,644	938,391	951,395	664,926	672,001	1,012,616

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.



<sup>a</sup> As part of the reclassification of disciplines, some R&D field names have changed.

<sup>b</sup> Before FY 2010, some institution totals for all fields of R&D expenditures may be lower-bound estimates because the National Science Foundation (NSF) did not attempt to estimate for nonresponse on non-S&E R&D expenditures before FY 2010.

**Note(s)**

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R&D expenditure amounts in various fields may show increases or decreases from amounts reported in FY 2015 because of the reclassification of disciplines.

**Source(s)**

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National Science Foundation, National Center for Science and Engineering Statistics, Higher Education Research and Development Survey (HERD).

*Science and Engineering Indicators 2018*