

## Science and Technology

This section presents statistics on scientific, engineering, and technological resources, with emphasis on patterns of research and development (R&D) funding and on scientific, engineering, and technical personnel; education; and employment. Also included are statistics on space program outlays. Principal sources of these data are the National Science Foundation (NSF) and the National Aeronautics and Space Administration (NASA).

NSF gathers data chiefly through recurring surveys. Current NSF publications containing data on funds for research and development and on scientific and engineering personnel include detailed statistical tables; info briefs; and annual, biennial, and special reports <<http://www.nsf.gov/statistics>>. Titles or the areas of coverage of these reports include the following: *Science and Engineering Indicators*; *National Patterns of R&D Resources*; *Women, Minorities, and Persons with Disabilities in Science and Engineering*, *Federal Funds for Research and Development*; *Federal R&D Funding by Budget Function*; *Federal Support to Universities, Colleges, and Selected Nonprofit Institutions*; *Research and Development in Industry*; R&D expenditures and graduate enrollment and support in academic science and engineering; and characteristics of doctoral scientists and engineers and of recent graduates in the United States. Statistical surveys in these areas pose problems of concept and definition and the data should therefore be regarded as broad estimates rather than precise, quantitative statements. See sources for methodological and technical details.

The National Science Board's biennial *Science and Engineering Indicators* <<http://www.nsf.gov/statistics/indicators/>> contains data and analysis of international and domestic science and technology, including measures of inputs and outputs. The *Budget of the United States Government*, published by the U.S. Office of Management and Budget, contains summary financial data on federal R&D programs.

**Research and development outlays**—NSF defines research as “systematic study directed toward fuller scientific knowledge of the subject studied” and development as “the systematic use of scientific knowledge directed toward the production of useful materials, devices, systems, or methods, including design and development of prototypes and processes.”

National coverage of R&D expenditures is developed primarily from periodic surveys in four principal economic sectors: (1) *Government*, made up primarily of federal executive agencies; (2) *industry*, consisting of manufacturing and nonmanufacturing firms and the federally funded research and development centers (FFRDCs) they administer; (3) *universities and colleges*, composed of universities, colleges, and their affiliated institutions, agricultural experiment stations, and associated schools of agriculture and of medicine, and FFRDCs administered by educational institutions; and (4) *other nonprofit institutions*, consisting of such organizations as private philanthropic foundations, nonprofit research institutes, voluntary health agencies, and FFRDCs administered by nonprofit organizations.

The R&D funds reported consist of current operating costs, including planning and administration costs, except as otherwise noted. They exclude funds for routine testing, mapping and surveying, collection of general-purpose data, dissemination of scientific information, and training of scientific personnel.

**Scientists, engineers, and technicians**—Scientists and engineers are defined as persons engaged in scientific and engineering work at a level requiring a knowledge of sciences equivalent at least to that acquired through completion of a 4-year college course. Technicians are defined as persons engaged in technical work at a level requiring knowledge acquired through a technical institute,

junior college, or other type of training less extensive than 4-year college

training. Craftsmen and skilled workers are excluded.

**Table 769. Research and Development (R&D) Expenditures by Source and Objective: 1970 to 2007**

[In millions of dollars (26,272 represents \$26,272,000,000), except as indicated. For calendar years]

Year	Total	Sources of funds					Objective (percent of total)			Character of work		
		Federal government	Industry	Universities/colleges	Non-profit	Non-federal government <sup>1</sup>	Defense related <sup>2</sup>	Space related <sup>3</sup>	Other	Basic research	Applied research	Development
1970 . . . .	26,272	14,984	10,449	259	343	237	33	10	56	3,594	5,752	16,925
1971 . . . .	26,952	15,210	10,824	290	366	262	33	10	58	3,720	5,833	17,399
1972 . . . .	28,741	16,039	11,715	312	393	282	33	8	59	3,850	6,147	18,743
1973 . . . .	30,953	16,587	13,299	343	422	302	32	7	61	4,099	6,655	20,197
1974 . . . .	33,359	17,287	14,885	393	474	320	29	7	64	4,511	7,344	21,504
1975 . . . .	35,671	18,533	15,824	432	534	348	28	8	65	4,875	8,091	22,706
1976 . . . .	39,435	20,292	17,702	480	592	369	27	8	65	5,373	8,976	25,085
1977 . . . .	43,338	22,071	19,642	569	662	394	27	7	66	6,008	9,662	27,667
1978 . . . .	48,720	24,414	22,457	679	727	443	26	6	68	6,959	10,704	31,056
1979 . . . .	55,380	27,225	26,097	785	791	482	25	6	70	7,836	12,097	35,445
1980 . . . .	63,225	29,986	30,929	920	871	519	24	5	70	8,745	13,714	40,765
1981 . . . .	72,293	33,739	35,948	1,058	967	581	24	5	70	9,658	16,329	46,305
1982 . . . .	80,748	37,133	40,692	1,207	1,095	621	26	5	69	10,651	18,218	51,879
1983 . . . .	89,950	41,451	45,264	1,357	1,220	658	28	4	68	11,880	20,298	57,771
1984 . . . .	102,243	46,470	52,187	1,514	1,351	721	29	3	68	13,332	22,451	66,461
1985 . . . .	114,671	52,641	57,962	1,743	1,491	834	30	3	67	14,748	25,401	74,522
1986 . . . .	120,248	54,622	60,991	2,019	1,647	969	31	3	66	17,154	27,240	75,855
1987 . . . .	126,361	58,609	62,576	2,262	1,849	1,065	32	3	65	18,481	27,951	79,929
1988 . . . .	133,880	60,130	67,977	2,527	2,081	1,165	30	4	66	19,786	29,528	84,566
1989 . . . .	141,889	60,464	74,966	2,852	2,333	1,274	28	4	69	21,889	32,277	87,723
1990 . . . .	151,990	61,607	83,208	3,187	2,589	1,399	25	4	71	23,028	34,896	94,067
1991 . . . .	160,872	60,780	92,300	3,457	2,852	1,483	22	5	73	27,139	38,629	95,104
1992 . . . .	165,347	60,912	96,229	3,568	3,113	1,525	22	4	74	27,604	37,933	99,810
1993 . . . .	165,727	60,524	96,549	3,709	3,388	1,557	21	4	74	28,743	37,280	99,704
1994 . . . .	169,202	60,773	99,203	3,938	3,665	1,623	20	5	76	29,651	36,615	102,936
1995 . . . .	183,620	62,964	110,870	4,110	3,925	1,751	19	5	77	29,610	40,933	113,077
1996 . . . .	197,340	63,389	123,416	4,435	4,239	1,861	18	4	78	32,799	43,165	121,375
1997 . . . .	212,144	64,568	136,227	4,837	4,590	1,922	17	4	79	36,917	46,551	128,676
1998 . . . .	226,457	66,376	147,845	5,162	5,102	1,972	16	4	80	35,333	46,388	144,735
1999 . . . .	245,041	67,046	164,660	5,618	5,619	2,098	15	3	82	38,875	52,097	154,069
2000 . . . .	267,562	66,406	186,136	6,231	6,542	2,247	13	2	84	42,767	56,932	167,863
2001 . . . .	277,746	72,826	188,440	6,826	7,257	2,397	14	2	84	47,792	64,708	165,245
2002 . . . .	276,602	77,699	180,711	7,343	8,292	2,557	15	2	82	51,410	51,035	174,157
2003 . . . .	289,039	83,606	186,174	7,649	8,868	2,742	16	2	82	54,839	61,690	172,509
2004 . . . .	299,905	88,749	191,377	7,933	8,962	2,884	17	2	81	56,378	70,172	173,354
2005 . . . .	323,005	93,734	207,841	8,575	9,905	2,950	17	2	81	60,003	70,355	192,647
2006 . . . .	347,872	97,701	227,276	9,282	10,542	3,071	17	2	81	61,721	76,788	209,362
2007 <sup>4</sup> . . . .	368,097	98,331	245,027	9,866	11,647	3,226	16	2	82	64,417	81,211	222,470

<sup>1</sup> Nonfederal R&D expenditures to university and college performers. <sup>2</sup> R&D spending by the Department of Defense, including space activities, and a portion of the Department of Energy funds. <sup>3</sup> For the National Aeronautics and Space Administration only. <sup>4</sup> Preliminary.

Source: U.S. National Science Foundation, *National Patterns of R&D Resources*, annual. See also <<http://www.nsf.gov/statistics/>>.

Table 770. Performance Sector of Research and Development (R&amp;D) Expenditures: 2000 to 2007

[In millions of dollars (267,562 represents \$267,562,000,000). For calendar year. FFRDCs are federally funded research and development centers]

Year	Federal government	Industry				Industry FFRDCs	Universities and colleges						University & college FFRDCs <sup>3</sup>	Other nonprofit institutions				
		Total	Federal government	Funded by—			Total	Federal government	Funded by—			Total		Funded by—				
				Industry <sup>1</sup>	Industry <sup>1</sup>				Non-federal government <sup>2</sup>	Universities & colleges	Non-profits			Federal government	Industry	Non-profits		
<b>RESEARCH AND DEVELOPMENT TOTAL</b>																		
2000	267,562	17,917	199,961	17,117	182,844	2,001	30,693	17,717	2,247	2,174	6,231	2,325	5,742	9,782	4,447	1,118	4,217	
2003	289,038	22,752	200,724	17,798	182,926	2,458	40,470	25,116	2,742	2,129	7,649	2,833	7,301	12,839	5,686	1,118	6,035	
2004	299,905	22,844	208,301	20,266	188,035	2,485	43,111	27,157	2,884	2,191	7,933	2,946	7,658	12,862	5,695	1,151	6,016	
2005	323,005	24,459	226,159	21,909	204,250	2,601	45,191	28,203	2,950	2,338	8,575	3,126	7,812	13,954	5,922	1,253	6,779	
2006	347,871	25,327	247,669	24,304	223,365	2,562	46,987	28,784	3,071	2,536	9,282	3,314	7,866	14,507	5,905	1,374	7,228	
2007 <sup>4</sup>	368,098	24,744	265,193	24,450	240,743	2,539	48,913	29,468	3,226	2,799	9,866	3,553	8,126	15,346	5,767	1,485	8,094	
<b>BASIC RESEARCH</b>																		
2000	42,767	3,765	7,040	925	6,115	547	22,864	13,915	1,549	1,499	4,297	1,603	2,874	5,062	2,099	621	2,341	
2003	54,839	4,664	8,330	1,386	6,944	299	30,084	19,600	1,872	1,454	5,223	1,935	3,747	6,686	2,714	621	3,351	
2004	56,378	4,697	7,835	1,072	6,763	175	32,105	21,143	1,981	1,506	5,450	2,024	3,729	6,768	2,788	639	3,341	
2005	60,003	4,826	8,667	1,108	7,559	136	34,009	22,159	2,057	1,631	5,982	2,180	3,814	7,370	2,910	696	3,764	
2006	61,721	4,952	8,384	1,444	6,940	131	35,413	22,661	2,151	1,777	6,502	2,322	3,907	7,680	2,904	763	4,013	
2007 <sup>4</sup>	64,417	4,869	8,933	1,453	7,480	130	36,801	23,199	2,257	1,958	6,901	2,485	4,047	8,260	2,941	824	4,494	
<b>APPLIED RESEARCH</b>																		
2000	56,932	6,105	39,176	2,682	36,494	269	6,653	3,350	572	553	1,586	592	1,329	3,183	1,831	283	1,069	
2003	61,690	7,672	37,334	4,473	32,861	1,434	8,832	4,838	713	554	1,989	737	1,756	4,300	2,487	283	1,529	
2004	70,172	7,455	45,432	4,775	40,657	1,509	9,230	5,136	740	562	2,035	756	1,920	4,264	2,448	292	1,525	
2005	70,355	7,594	45,284	5,289	39,995	1,487	9,284	5,070	732	580	2,126	775	1,858	4,439	2,403	318	1,718	
2006	76,788	7,692	51,173	6,140	45,033	1,446	9,623	5,153	754	623	2,279	814	1,779	4,635	2,455	348	1,832	
2007 <sup>4</sup>	81,211	7,839	54,713	6,177	48,537	1,414	10,102	5,310	795	690	2,431	875	1,844	4,844	2,417	376	2,051	
<b>DEVELOPMENT</b>																		
2000	167,863	8,047	153,745	13,510	140,235	1,185	1,177	452	126	121	348	130	1,539	1,537	517	214	807	
2003	172,509	10,416	155,060	11,939	143,121	725	1,555	678	157	122	437	162	1,798	1,853	485	214	1,155	
2004	173,354	10,692	155,034	14,419	140,615	801	1,776	878	163	123	447	166	2,008	1,830	459	220	1,151	
2005	192,647	12,039	172,208	15,512	156,696	979	1,899	974	161	127	467	170	2,140	2,145	609	240	1,297	
2006	209,362	12,682	188,112	16,720	171,392	985	1,951	970	166	137	500	179	2,180	2,192	546	263	1,383	
2007 <sup>4</sup>	222,470	12,037	201,547	16,820	184,726	995	2,010	958	175	151	534	192	2,236	2,242	409	284	1,549	

<sup>1</sup> Includes all nonfederal sources of industry R&D expenditures. <sup>2</sup> Includes all nonfederal sources. <sup>3</sup> Includes all R&D expenditures of FFRDCs administered by academic institutions and funded by the federal government. <sup>4</sup> Preliminary.

Source: National Science Foundation. Data derived from: *Research and Development in Industry*, annual; *Academic Research and Development Expenditures*, annual; and *Federal Funds For Research and Development*, annual. See also <<http://www.nsf.gov/statistics/>>.

**Table 771. National Research and Development (R&D) Expenditures as a Percent of Gross Domestic Product by Country: 1990 to 2006**

Year	Total R&D						Nondefense R&D <sup>1</sup>		
	United States	Japan <sup>2</sup>	Unified Germany <sup>3</sup>	France	United Kingdom	Italy	Canada	Russia	Total OECD <sup>4</sup>
1990	2.62	2.81	2.61	2.33	2.15	1.25	1.51	2.03	2.26
1995	2.48	2.71	2.19	2.29	1.95	0.97	1.70	0.85	2.07
2000	2.73	3.05	2.45	2.15	1.86	1.05	1.92	1.05	2.23
2002	2.64	3.18	2.49	2.23	1.83	1.13	2.04	1.25	2.24
2003	2.63	3.20	2.52	2.17	1.79	1.11	2.01	1.28	2.25
2004	2.56	3.18	2.50	2.14	1.73	1.10	2.01	1.16	2.25
2005	2.59	(NA)	2.51	2.13	(NA)	(NA)	1.98	1.07	(NA)
2006	2.60	(NA)	(NA)	(NA)	(NA)	(NA)	1.95	(NA)	(NA)

NA Not available. <sup>1</sup> Estimated. <sup>2</sup> Data on Japanese research and development in 2000 and later years may not be consistent with data in earlier years because of changes in methodology. <sup>3</sup> Data for 1990 are for West Germany only.

<sup>4</sup> Organization for Economic Cooperation and Development.

Source: National Science Foundation, *National Patterns of R&D Resources*, annual; and Organization for Economic Cooperation and Development.

**Table 772. Federal Obligations for Research in Current and Constant (2000) Dollars by Field of Science: 1980 to 2007**

[In millions of dollars (11,597 represents \$11,597,000,000). For fiscal years ending in year shown; see text, Section 8. Excludes R&D plant]

Field of science	1980	1990	2000	2002	2003	2004	2005	2006, prel.	2007, prel.
<b>CURRENT DOLLARS</b>									
<b>Research, total</b>	<b>11,597</b>	<b>21,622</b>	<b>38,471</b>	<b>48,007</b>	<b>51,072</b>	<b>54,450</b>	<b>53,738</b>	<b>54,964</b>	<b>55,089</b>
Basic	4,674	11,286	19,570	23,668	24,751	26,121	27,140	27,680	28,264
Applied	6,923	10,337	18,901	24,338	26,320	27,237	26,598	27,284	26,825
Life sciences	4,192	8,830	17,965	25,477	27,772	27,729	28,543	28,207	27,811
Psychology	199	449	1,627	906	1,104	1,855	1,916	1,934	1,912
Physical sciences	2,001	3,809	4,788	4,983	5,022	5,211	5,473	5,394	5,648
Environmental sciences	1,261	2,174	3,329	3,418	3,741	3,742	3,876	3,754	3,636
Mathematics and computer sciences	241	841	2,206	2,631	2,672	2,949	3,115	3,081	3,182
Engineering	2,830	4,227	6,346	8,275	8,405	8,866	9,481	9,397	9,487
Social sciences	524	630	1,050	983	1,026	1,090	1,132	1,178	1,215
Other sciences, n.e.c. <sup>1</sup>	350	664	1,160	1,334	1,329	1,916	2,010	2,034	2,199
<b>CONSTANT (2000) DOLLARS <sup>2</sup></b>									
<b>Research, total</b>	<b>21,848</b>	<b>26,622</b>	<b>38,471</b>	<b>46,272</b>	<b>48,236</b>	<b>50,179</b>	<b>48,032</b>	<b>47,658</b>	<b>46,080</b>
Basic	8,806	13,896	19,570	22,686	23,271	24,072	24,258	24,001	23,642
Applied	13,043	12,727	18,901	23,328	24,747	25,101	23,774	23,657	22,438
Life sciences	7,898	10,872	17,965	24,419	26,112	25,458	25,510	24,584	23,263
Psychology	375	553	1,627	868	1,038	1,703	1,712	1,686	1,599
Physical sciences	3,770	4,690	4,788	4,776	4,721	4,784	4,892	4,701	4,724
Environmental sciences	2,376	2,677	3,329	3,276	3,517	3,435	3,464	3,272	3,041
Mathematics and computer sciences	454	1,035	2,206	2,521	2,513	2,708	2,784	2,685	2,662
Engineering	5,332	5,204	6,346	7,931	7,903	8,140	8,473	8,190	7,936
Social sciences	987	776	1,050	942	964	1,000	1,011	1,026	1,016
Other sciences, n.e.c. <sup>1</sup>	659	818	1,160	1,279	1,250	1,759	1,797	1,773	1,839

<sup>1</sup> Not elsewhere classified. <sup>2</sup> Based on gross domestic product implicit price deflator.

Source: U.S. National Science Foundation, *Federal Funds for Research and Development*, annual. See also <<http://www.nsf.gov/statistics/>>.

**Table 773. Federal Budget Authority for Research and Development (R&D) in Current and Constant (2000) Dollars by Selected Budget Functions: 2005 to 2008**

[In millions of dollars (126,601 represents \$126,601,000,000). For year ending September 30. Excludes R&D plant. Represents budget authority. Functions shown are those for which \$1 billion or more was authorized since 2001]

Function	Current dollars				Constant (2000) dollars <sup>1</sup>			
	2005	2006	2007, prel.	2008, prel.	2005	2006	2007, prel.	2008, prel.
<b>Total <sup>2</sup></b>	<b>126,601</b>	<b>131,624</b>	<b>137,026</b>	<b>138,332</b>	<b>112,335</b>	<b>113,050</b>	<b>114,618</b>	<b>113,517</b>
National defense	74,047	78,037	81,667	82,383	65,703	67,025	68,312	67,605
Health	28,824	28,797	29,481	29,242	25,576	24,733	24,660	23,996
Space research and technology	7,300	8,204	8,933	9,506	6,477	7,046	7,472	7,801
Energy	1,296	1,195	1,581	1,468	1,150	1,026	1,322	1,205
General science	6,570	6,691	7,185	7,752	5,830	5,747	6,010	6,361
Natural resources and environment	2,168	2,120	1,932	1,944	1,924	1,821	1,616	1,595
Transportation	1,847	1,711	1,490	1,368	1,639	1,470	1,246	1,123
Agriculture	1,820	1,869	1,824	1,629	1,615	1,605	1,526	1,337

<sup>1</sup> Based on gross domestic product implicit price deflator. <sup>2</sup> Includes other functions, not shown separately.

Source: U.S. National Science Foundation, *Federal R&D Funding by Budget Function*, annual. See also <<http://www.nsf.gov/statistics/fedfunds/>>.

Table 774. **Research and Development (R&D) Funds in R&D-Performing Manufacturing and Nonmanufacturing Companies by Industry: 2004 to 2006**

Industry	NAICS <sup>1</sup> code	Total R&D funds as a percent of net sales			Company R&D funds as a percent of net sales		
		2004	2005	2006	2004	2005	2006
<b>All industries, total</b> . . . . .	<b>(X)</b>	<b>3.7</b>	<b>3.7</b>	<b>3.7</b>	<b>3.4</b>	<b>3.3</b>	<b>3.4</b>
<b>All manufacturing industries, total</b> . . . . .	<b>(X)</b>	<b>3.8</b>	<b>4.0</b>	<b>4.0</b>	<b>3.4</b>	<b>3.6</b>	<b>3.6</b>
Food . . . . .	311	0.6	0.7	0.7	0.6	0.7	0.7
Paper, printing, and support activities . . . . .	322, 326	(D)	(D)	(D)	1.5	1.5	1.2
Petroleum and coal products . . . . .	324	0.4	(D)	0.3	0.4	0.4	0.3
Chemicals . . . . .	325	(D)	6.9	7.6	6.6	6.9	7.5
Plastic and rubber products . . . . .	326	(D)	2.0	2.0	1.6	1.9	1.9
Nonmetallic mineral products . . . . .	327	1.8	1.8	2.1	1.8	1.8	1.9
Primary metals . . . . .	331	0.7	0.6	0.5	0.7	0.5	0.5
Fabricated metal products . . . . .	332	1.5	0.8	1.4	1.4	0.8	1.4
Machinery . . . . .	333	3.7	3.7	3.6	3.6	3.6	3.6
Navigational, measuring, electromedical, and control instruments . . . . .	3345	13.8	12.8	13.1	7.1	7.0	7.5
Electrical equipment, appliances, and components . . . . .	335	2.8	2.4	2.6	2.7	2.3	2.5
Motor vehicles, trailers, and parts . . . . .	3361-3363	2.4	(D)	(D)	2.4	2.5	2.4
Aerospace products and parts . . . . .	3364	5.7	6.6	6.7	4.0	4.8	4.9
<b>All nonmanufacturing industries, total</b> . . . . .	<b>(X)</b>	<b>3.5</b>	<b>3.2</b>	<b>3.2</b>	<b>3.2</b>	<b>2.9</b>	<b>2.9</b>
Transportation and warehousing services . . . . .	48, 49	(D)	(D)	(D)	0.5	0.4	0.3
Software publishing . . . . .	5112	(D)	21.9	(D)	23.3	21.9	19.9
Architectural, engineering, and related services . . . . .	5413	12.2	9.4	14.4	6.6	4.9	10.7
Computer systems design and related services . . . . .	5415	12.1	10.0	5.3	11.7	9.6	4.9
Scientific R&D services . . . . .	5417	35.8	35.6	35.1	29.6	27.4	24.2

D Figure withheld to avoid disclosure of information pertaining to a specific organization or individual. NA Not applicable. X Not applicable. <sup>1</sup> North American Industry Classification System 1997 (NAICS); see text, Section 15.

Source: U.S. National Science Foundation, *Research and Development in Industry*, annual. See also <<http://www.nsf.gov/statistics/pubseri.cfm?TopID=2&SubID=5&SerID=26>>.

Table 775. **Funds for Performance of Industrial Research and Development (R&D) by Source of Funds and Selected Industries: 2003 to 2006**

[In millions of dollars (200,724 represents \$200,724,000,000). For calendar years. Covers basic research, applied research, and development. Based on the Survey of Industry Research and Development]

Industry	NAICS <sup>1</sup> code	2003	2004	2005	2006
		<b>CURRENT DOLLARS</b>			
<b>Total funds</b> <sup>2</sup> . . . . .	<b>(X)</b>	<b>200,724</b>	<b>208,301</b>	<b>226,159</b>	<b>247,669</b>
<b>Company and other funds</b> . . . . .	<b>(X)</b>	<b>182,926</b>	<b>188,035</b>	<b>204,250</b>	<b>223,365</b>
<b>Federal funds</b> . . . . .	<b>(X)</b>	<b>17,798</b>	<b>20,266</b>	<b>21,909</b>	<b>24,304</b>
Petroleum and coal products . . . . .	324	(D)	1,603	(D)	1,432
Chemicals and allied products . . . . .	325	23,001	(D)	42,995	46,329
Pharmaceuticals and medicines . . . . .	3254	(D)	31,477	34,839	38,901
Machinery . . . . .	333	6,304	6,579	8,531	9,848
Computer and electronic products . . . . .	334	39,001	48,296	(D)	56,773
Navigational, measuring, electromedical, and control instruments . . . . .	3345	14,014	15,214	15,204	18,300
Electrical equipment, appliances, and components . . . . .	335	2,073	2,664	2,424	2,281
Motor vehicles, trailers, and parts . . . . .	3361-3363	(D)	15,677	(D)	(D)
Aerospace products and parts . . . . .	3364	13,205	13,086	15,055	16,367
Information . . . . .	51	(D)	22,593	23,836	26,883
Professional, scientific, and technical services . . . . .	54	27,967	28,709	32,021	38,049
Computer systems design and related services . . . . .	5415	9,032	11,575	13,592	14,841
Scientific R&D services . . . . .	5417	12,460	11,355	12,299	14,525
<b>CONSTANT (2000) DOLLARS</b> <sup>3</sup>					
<b>Total funds</b> <sup>2</sup> . . . . .	<b>(X)</b>	<b>188,650</b>	<b>190,351</b>	<b>200,602</b>	<b>213,342</b>
<b>Company and other funds</b> . . . . .	<b>(X)</b>	<b>171,923</b>	<b>171,831</b>	<b>181,169</b>	<b>192,407</b>
<b>Federal funds</b> . . . . .	<b>(X)</b>	<b>19,454</b>	<b>18,520</b>	<b>19,433</b>	<b>20,935</b>
Petroleum and coal products . . . . .	324	(D)	1,465	(D)	1,234
Chemicals . . . . .	325	21,617	(D)	38,136	39,908
Pharmaceuticals and medicines . . . . .	3254	(D)	28,765	30,902	33,509
Machinery . . . . .	333	5,925	6,012	7,567	8,483
Computer and electronic products . . . . .	334	36,655	44,134	(D)	48,904
Navigational, measuring, electromedical, and control instruments . . . . .	3345	13,171	13,903	13,486	15,764
Electrical equipment, appliances, and components . . . . .	335	1,948	2,434	2,150	1,965
Motor vehicles, trailers, and parts . . . . .	3361-3363	(D)	14,326	(D)	(D)
Aerospace products and parts . . . . .	3364	12,411	11,958	13,354	14,099
Information . . . . .	51	(D)	20,646	21,142	23,157
Professional, scientific, and technical services . . . . .	54	26,285	26,235	28,403	32,775
Computer systems design and related services . . . . .	5415	8,489	10,578	12,056	12,784
Scientific R&D services . . . . .	5417	11,711	10,376	10,909	12,512

D Figure withheld to avoid disclosure of information pertaining to a specific organization or individual. X Not applicable. <sup>1</sup> North American Industry Classification System, 1997; see text, Section 15. <sup>2</sup> Includes other industries not shown separately. <sup>3</sup> Based on gross domestic product implicit price deflator.

Source: U.S. National Science Foundation, *Research and Development in Industry*, annual. See also <<http://www.nsf.gov/statistics/pubseri.cfm?TopID=2&SubID=5&SerID=26>>.

**Table 776. Academic and Industrial Research and Development (R&D) Performed by State: 2005**

[44,945,923 represents \$44,945,923,000. For definition of research and development (R&D), see text this section]

State	Academic R&D (\$1,000)	Academic R&D per \$1,000 of GDP	Industry-performed R&D (mil. dol)	Industry-performed R&D per private-industry output (percent) <sup>1</sup>	State	Academic R&D (\$1,000)	Academic R&D per \$1,000 of GDP	Industry-performed R&D (mil. dol)	Industry-performed R&D per private-industry output (percent) <sup>1</sup>
<b>U.S.</b> . . . .	<b>44,945,923</b>	<b>3.63</b>	<b>222,427</b>	<b>2.04</b>	MT . . . . .	170,791	5.71	<sup>3</sup> 77	<sup>3</sup> 0.31
AL . . . . .	589,860	3.90	1,417	1.10	NE . . . . .	360,148	4.99	407	0.65
AK . . . . .	153,721	3.90	32	<sup>2</sup> 0.10	NV . . . . .	178,492	1.62	382	0.39
AZ . . . . .	720,184	3.39	<sup>2</sup> 2,980	1.60	NH . . . . .	287,472	5.31	1,435	2.92
AR . . . . .	209,518	2.41	<sup>3</sup> 271	<sup>3</sup> 0.36	NJ . . . . .	867,121	2.03	13,214	3.45
CA . . . . .	6,272,890	3.88	50,683	3.53	NM . . . . .	345,844	4.96	405	0.71
CO . . . . .	825,984	3.85	4,299	2.28	NY . . . . .	3,604,414	3.75	9,474	1.10
CT . . . . .	669,199	3.46	7,885	4.47	NC . . . . .	1,652,049	4.71	5,158	1.69
DE . . . . .	115,751	2.04	1,511	2.90	ND . . . . .	149,994	6.02	104	0.49
DC . . . . .	302,921	3.67	166	0.30	OH . . . . .	1,530,915	3.46	5,900	1.50
FL . . . . .	1,448,634	2.17	4,164	0.71	OK . . . . .	291,697	2.40	422	0.41
GA . . . . .	1,274,410	3.56	2,282	0.73	OR . . . . .	536,228	3.78	3,252	2.66
HI . . . . .	240,247	4.39	168	0.40	PA . . . . .	2,353,640	4.84	8,846	2.02
ID . . . . .	119,871	2.61	642	1.62	RI . . . . .	199,709	4.58	<sup>3</sup> 1,387	<sup>3</sup> 3.63
IL . . . . .	1,770,938	3.19	9,712	1.94	SD . . . . .	486,399	3.47	1,402	1.19
IN . . . . .	759,419	3.21	<sup>3</sup> 4,610	<sup>3</sup> 2.17	SC . . . . .	67,012	2.19	68	0.26
IA . . . . .	548,237	4.66	1,039	1.00	TN . . . . .	726,078	3.23	1,246	0.62
KS . . . . .	348,751	3.31	<sup>3</sup> 1,993	<sup>3</sup> 2.23	TX . . . . .	3,073,724	3.11	12,438	1.41
KY . . . . .	452,265	3.26	660	0.56	UT . . . . .	400,276	4.53	1,234	1.63
LA . . . . .	579,734	3.21	300	0.19	VT . . . . .	117,442	5.09	360	1.80
ME . . . . .	81,624	1.82	350	0.91	VA . . . . .	914,166	2.61	4,379	1.51
MD . . . . .	<sup>4</sup> 1,678,649	<sup>4</sup> 6.87	3,706	1.82	WA . . . . .	901,102	3.32	9,736	4.17
MA . . . . .	2,079,463	6.50	13,342	4.57	WV . . . . .	145,150	2.73	242	0.55
MI . . . . .	1,455,849	3.91	16,752	5.04	WI . . . . .	998,449	4.60	2,729	1.42
MN . . . . .	559,585	2.42	6,340	3.06	WY . . . . .	83,449	3.06	30	0.13
MS . . . . .	353,445	4.43	194	0.29					
MO . . . . .	893,013	4.15	2,602	1.37					

<sup>1</sup> Gross Domestic Product (GDP) by state for private industries. <sup>2</sup>More than 50 percent of industrial R&D value imputed because of raking of state data for Alaska. <sup>3</sup>More than 50 percent of industrial R&D value imputed. <sup>4</sup>For Maryland, academic R&D excludes R&D performed by Applied Physics Laboratory (APL) at Johns Hopkins University. APL employs more than 3,000 people and supports government agencies rather than focusing on academic research.

Source: National Science Foundation, Division of Science Resources Statistics, *Science and Engineering Indicators, 2008* (biennial) January 2008. For more information, see <<http://www.nsf.gov/statistics/seind08/start.htm>>.

**Table 777. Research and Development (R&D) Expenditures in Science and Engineering at Universities and Colleges in Current and Constant (2000) Dollars: 1990 to 2006**

[In millions of dollars (16,286 represents \$16,286,000,000)]

Characteristic	Current dollars				Constant (2000) dollars <sup>1</sup>			
	1990	2000	2005	2006	1990	2000	2005	2006
<b>Total</b> . . . . .	<b>16,286</b>	<b>30,073</b>	<b>45,777</b>	<b>47,760</b>	<b>20,044</b>	<b>30,073</b>	<b>40,618</b>	<b>41,020</b>
Basic research <sup>2</sup> . . . . .	10,643	22,456	34,348	36,044	13,099	22,456	30,477	30,958
Applied R&D <sup>2</sup> . . . . .	5,643	7,617	11,429	11,717	6,945	7,617	10,141	10,064
Source of funds:								
Federal government . . . . .	9,638	17,538	29,191	30,033	11,862	17,538	25,902	25,795
State and local government . . . . .	1,324	2,200	2,942	3,016	1,630	2,200	2,610	2,590
Institutions' own funds . . . . .	3,006	5,924	8,258	9,062	3,700	5,924	7,327	7,783
Industry . . . . .	1,127	2,156	2,294	2,428	1,387	2,156	2,035	2,085
Other . . . . .	1,191	2,254	3,093	3,221	1,466	2,254	2,744	2,766
Fields:								
Physical sciences . . . . .	1,807	2,712	3,704	3,823	2,224	2,712	3,287	3,284
Environmental sciences . . . . .	1,069	1,765	2,551	2,602	1,316	1,765	2,264	2,235
Mathematical sciences . . . . .	222	342	495	530	273	342	439	455
Computer sciences . . . . .	515	876	1,406	1,438	634	876	1,248	1,235
Life sciences . . . . .	8,726	17,471	27,604	28,831	10,740	17,471	24,493	24,763
Psychology . . . . .	253	517	826	875	311	517	733	752
Social sciences . . . . .	703	1,299	1,685	1,703	865	1,299	1,495	1,463
Other sciences . . . . .	336	535	769	882	414	535	682	758
Engineering . . . . .	2,656	4,555	6,738	7,076	3,269	4,555	5,979	6,077

<sup>1</sup> Based on gross domestic product implicit price deflator. <sup>2</sup> Basic research and applied R&D statistics were reestimated for FY 2001 and forward. These data are not directly comparable to those from earlier years.

Source: U.S. National Science Foundation, *Survey of Research and Development Expenditures at Universities and Colleges*, annual. See also <<http://www.nsf.gov/statistics/showsvry.cfm?svryCatID=4&svrySer=12>>.

**Table 778. Federal Research and Development (R&D) Obligations to Selected Universities and Colleges: 2004 and 2005**

[In millions of dollars (23,811.0 represents \$23,811,000,000). For years ending September 30. For the top 40 institutions receiving federal R&D funds in 2005. Awards to the administrative offices of university systems are excluded from totals for individual institutions because that allocation of funds is unknown, but those awards are included in "total all institutions"]

Major institution ranked by total 2005 federal R&D obligations	2004 2005		Major institution ranked by total 2005 federal R&D obligations	2004 2005	
	<b>Total, all institutions</b> <sup>1</sup>	<b>23,811.0</b>		<b>25,010.7</b>	University Southern California
Johns Hopkins University	1,034.9	1,045.4	Case Western Reserve University	241.5	287.7
University of Washington	589.6	601.1	Vanderbilt University	259.5	279.2
University of Pennsylvania	494.2	519.6	Pennsylvania State University	316.2	270.2
University of California—Los Angeles	470.3	494.0	Baylor College of Medicine	252.6	250.9
University of Michigan	477.3	472.7	University of Rochester	236.3	248.5
Stanford University	472.3	460.9	University of California—Berkeley	246.9	245.5
University of California—San Francisco	395.5	447.2	The Scripps Research Institute	229.1	241.2
Duke University	392.6	432.0	University of Alabama—Birmingham	211.6	232.9
Columbia University—City of NY	369.5	411.0	University of Chicago	209.5	227.1
Harvard University	379.1	405.5	Emory University	214.0	223.5
University of Pittsburgh	371.9	405.4	Ohio State University	202.9	219.1
Washington University	386.4	403.2	University of California—Davis	205.1	217.3
University of California—San Diego	420.3	401.4	Northwestern University	208.5	216.0
University of Wisconsin—Madison	364.0	374.7	University of Arizona	206.9	201.4
Yale University	343.0	356.3	Boston University	208.7	200.4
Massachusetts Institute of Technology	340.2	342.8	University of Florida	179.0	197.0
University of Colorado	336.7	336.2	University of Illinois—Urbana		
University of Minnesota	328.7	329.0	Champaign	198.2	188.3
Cornell University	328.6	323.3	University of Virginia	188.8	185.6
University of North Carolina at Chapel Hill	305.7	323.0	University of Iowa	178.1	182.2

<sup>1</sup> Includes other institutions, not shown separately.

Source: U.S. National Science Foundation, *Federal S&E Support to Universities and Colleges and Nonprofit Institutions*, annual.

**Table 779. Graduate Science/Engineering Students in Doctorate-Granting Colleges by Characteristic and Field: 1990 to 2006**

[In thousands (409.4 represents 409,400). As of fall. Includes outlying areas]

Field of science or engineering	Total			Characteristic								
				Female			Foreign		Part-time			
	1990	2000	2006	1990	2000	2006	2000	2006	1990	2000	2006	
<b>Total, all surveyed fields</b>	<b>409.4</b>	<b>443.5</b>	<b>542.1</b>	<b>155.5</b>	<b>201.8</b>	<b>263.6</b>	<b>123.3</b>	<b>144.5</b>	<b>130.8</b>	<b>123.6</b>	<b>148.9</b>	
Science/engineering	360.6	374.8	445.0	117.9	150.3	188.9	118.0	136.6	107.5	99.3	113.7	
Engineering, total	101.0	98.8	116.6	13.8	19.7	26.3	46.3	52.9	36.7	28.2	31.5	
Sciences, total	259.6	275.9	328.4	104.2	130.7	162.6	71.7	83.7	70.8	71.1	82.2	
Physical sciences	32.9	29.6	35.9	7.7	8.8	11.6	11.5	14.5	3.9	3.5	3.6	
Environmental	13.1	13.0	14.0	3.8	5.3	6.5	2.6	2.7	3.2	2.8	2.9	
Mathematical sciences	18.1	14.4	19.0	5.6	5.2	6.8	5.9	7.4	4.7	3.0	4.0	
Computer sciences	29.2	40.3	43.0	6.8	11.7	10.8	19.7	19.1	14.1	16.7	16.1	
Agricultural sciences	11.0	11.3	12.1	3.2	4.8	5.8	2.4	2.6	2.0	2.4	3.2	
Biological sciences	46.7	53.1	65.9	21.4	27.8	36.9	11.6	16.6	7.2	7.6	8.8	
Psychology	38.5	40.3	47.2	25.5	29.0	35.5	2.1	2.6	12.0	10.8	14.3	
Social sciences	70.0	73.9	91.2	30.1	38.1	48.6	15.8	18.1	23.8	24.3	29.3	
Health fields, total	48.8	68.8	97.0	37.6	51.5	74.7	5.4	7.9	23.3	24.3	35.3	

Source: U.S. National Science Foundation, *Survey of Graduate Science Engineering Students and Postdoctorates*, annual. See also <<http://www.nsf.gov/statistics/gradpostdoc/>>.

**Table 780. Non-U.S. Citizens Awarded Doctorates in Science and Engineering by Visa Type and Country of Citizenship: 1997 to 2006**

[For description of science and engineering fields, see Table 785]

Visa and country/economy	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>All non-U.S. citizens</b>	<b>9,788</b>	<b>9,736</b>	<b>8,894</b>	<b>9,070</b>	<b>9,217</b>	<b>8,867</b>	<b>9,483</b>	<b>10,158</b>	<b>11,519</b>	<b>12,775</b>
Canada	263	286	289	294	306	316	324	380	368	363
Mexico	148	176	172	208	206	182	218	181	206	183
Brazil	151	164	164	131	142	126	108	136	156	139
United Kingdom	92	124	142	100	138	134	109	109	108	100
Germany	181	210	183	229	220	197	192	185	182	176
China	2,395	2,503	2,234	2,379	2,407	2,402	2,503	2,878	3,482	4,280
Japan	155	155	158	201	149	157	201	186	211	222
Korea	901	822	760	754	865	856	958	1,057	1,179	1,219
Taiwan	1,093	910	746	676	539	469	440	394	444	431
Thailand	97	122	134	153	237	264	314	272	252	199
India	1,281	1,134	915	834	818	681	773	864	1,110	1,524
Iran	113	93	92	80	100	59	68	60	136	148
Turkey	170	172	192	275	307	345	374	344	342	357
Science	6,440	6,678	6,299	6,269	6,129	5,945	6,305	6,605	7,481	8,203
Engineering	3,148	3,058	2,595	2,801	3,088	2,922	3,178	3,553	4,038	4,572
Permanent visa	2,281	1,991	1,654	1,409	1,271	1,173	1,099	1,003	1,113	1,253
Temporary visa	7,507	7,745	7,240	7,661	7,946	7,694	8,384	9,155	10,406	11,522

Source: U.S. National Science Foundation, *Science and Engineering Doctorate Awards*, annual. See also <<http://www.nsf.gov/statistics/nsf07305/>> (released December 2007).



**Table 781. Science and Engineering (S&E) Degrees Awarded, by Degree Level and Sex of Recipient: 1980 to 2006**

[For a description of science and engineering degree categories, see Appendix B of source <<http://www.nsf.gov/statistics/nsf07307/content.cfm?pubid=3634&id=4>>]

Academic year ending	Bachelor's degree				Master's degree				Doctoral degree			
	Total S&E	Men	Women	Percent women	Total S&E	Men	Women	Percent women	Total S&E	Men	Women	Percent women
1980 . . . . .	304,695	191,215	113,480	37.2	64,089	46,004	18,085	28.2	17,775	13,814	3,961	22.3
1990 . . . . .	329,094	189,082	140,012	42.5	77,788	51,230	26,558	34.1	22,867	16,498	6,369	27.9
2000 . . . . .	398,622	197,669	200,953	50.4	95,683	54,213	41,470	43.3	25,912	16,519	9,393	36.2
2004 . . . . .	455,848	225,909	229,939	50.4	118,470	66,798	51,672	43.6	26,274	16,418	9,856	37.4
2005 . . . . .	466,003	230,806	235,197	50.5	120,025	66,974	53,051	44.2	27,946	17,407	10,539	37.7
2006 . . . . .	473,533	234,260	239,273	50.5	120,337	66,262	54,075	44.9	29,810	18,341	11,469	38.5

Source: U.S. National Science Foundation, *Science and Engineering Degrees: 1966–2006*, January, 2008. See also <<http://www.nsf.gov/statistics/degrees/>>.

**Table 782. Doctorates Conferred by Characteristics of Recipients: 2000 and 2006**

[In percent, except as indicated. Based on the Survey of Earned Doctorate Awards; for description of methodology, see source]

Characteristic	2000, total	2006									
		All fields <sup>1</sup>	Engineering	Physical sciences <sup>2</sup>	Earth sciences	Mathematics	Computer sciences	Biological sciences <sup>3</sup>	Agricultural	Social sciences <sup>4</sup>	Psychology
<b>Total conferred (number)</b> . . . . .	<b>41,365</b>	<b>45,596</b>	<b>7,191</b>	<b>3,925</b>	<b>757</b>	<b>1,327</b>	<b>1,452</b>	<b>6,631</b>	<b>1,033</b>	<b>4,275</b>	<b>3,623</b>
Male . . . . .	56.0	55.0	79.8	72.2	64.7	70.4	78.7	50.8	60.2	54.3	28.7
Female . . . . .	43.8	45.0	20.2	27.8	35.3	29.6	21.3	49.2	39.8	45.7	71.3
<b>CITIZENSHIP<sup>5</sup></b>											
<b>Total conferred (number)</b> . . . . .	<b>39,596</b>	<b>42,864</b>	<b>6,757</b>	<b>3,717</b>	<b>713</b>	<b>1,283</b>	<b>1,374</b>	<b>6,313</b>	<b>974</b>	<b>4,062</b>	<b>3,041</b>
U.S. citizen . . . . .	70.7	62.8	32.3	49.4	62.4	42.8	35.2	66.0	56.1	62.2	89.5
Foreign citizen . . . . .	29.3	37.2	67.7	50.6	37.6	57.2	64.8	34.0	43.9	37.8	10.5
<b>RACE/ETHNICITY<sup>6</sup></b>											
<b>Total conferred (number)</b> . . . . .	<b>29,936</b>	<b>28,746</b>	<b>2,485</b>	<b>1,993</b>	<b>473</b>	<b>615</b>	<b>579</b>	<b>4,467</b>	<b>577</b>	<b>2,725</b>	<b>2,798</b>
White <sup>7</sup> . . . . .	79.2	76.4	69.3	81.3	85.8	77.2	70.3	76.1	83.0	74.9	75.7
Black <sup>7</sup> . . . . .	5.8	6.2	4.1	2.4	1.1	3.3	2.6	3.3	4.2	7.4	6.3
Asian/Pacific <sup>7</sup> . . . . .	7.6	8.3	17.6	9.2	5.1	11.4	21.8	12.1	5.0	6.8	6.1
Indian/Alaskan <sup>7</sup> . . . . .	0.6	0.4	(D)	(D)	(D)	(D)	(D)	0.1	D	0.5	0.5
Hispanic . . . . .	4.4	5.3	4.5	4.0	4.4	4.1	1.2	5.0	4.7	6.1	7.5
Other/unknown <sup>8</sup> . . . . .	2.4	3.5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.3	3.8

<sup>1</sup> Includes other fields, not shown separately. <sup>2</sup> Astronomy, physics, and chemistry. <sup>3</sup> Biochemistry, botany, microbiology, physiology, zoology, and related fields. <sup>4</sup> Anthropology, sociology, political science, economics, international relations and related fields. <sup>5</sup> For those with known citizenship. Includes those with temporary visas. <sup>6</sup> Excludes those with temporary visas. <sup>7</sup> Non-Hispanic. <sup>8</sup> 2006 data includes Native Hawaiians and Other Pacific Islanders, respondents choosing multiple races (excluding those selecting an Hispanic ethnicity), and respondents with unknown race/ethnicity.

Source: U.S. National Science Foundation, *Science and Engineering Doctorate Awards*, annual. See also <<http://www.nsf.gov/statistics/nsf07305/>> (released December 2007).

**Table 783. Science and Engineering (S&E) Doctorates by State: 2005 and 2006**

[Per 1,000 population. Data on U.S. S&E doctorate holders classified by employer location. Population of doctorate holders consisted of all individuals under 76 years of age who received a research doctorate in S&E from a U.S. institution and were residing in the United States. Excludes medical doctorates]

State	S&E doctorates conferred 2005	Doctorate holders 2006 <sup>1</sup>	Doctorate holders per capita 2006 <sup>1</sup>	State	S&E doctorates conferred 2005	Doctorate holders 2006 <sup>1</sup>	Doctorate holders per capita 2006 <sup>1</sup>	State	S&E doctorates conferred 2005	Doctorate holders 2006 <sup>1</sup>	Doctorate holders per capita 2006 <sup>1</sup>
<b>U.S. . . . .</b>	<b>27,930</b>	<b>708,080</b>	<b>2.4</b>	KS . . . . .	246	4,830	1.8	ND <sup>2</sup> . . . . .	45	1,550	2.4
AL <sup>2</sup> . . . . .	338	7,090	1.5	KY . . . . .	242	5,760	1.4	OH . . . . .	1,041	23,630	2.1
AK . . . . .	25	1,330	2.0	LA . . . . .	338	6,290	1.5	OK . . . . .	232	5,290	1.5
AZ . . . . .	473	10,050	1.6	ME <sup>2</sup> . . . . .	24	2,930	2.2	OR . . . . .	260	10,900	3.0
AR . . . . .	116	3,250	1.2	MD . . . . .	744	29,870	5.3	PA . . . . .	1,397	32,780	2.6
CA . . . . .	3,600	99,110	2.7	MA . . . . .	1,632	35,440	5.5	RI . . . . .	175	3,290	3.1
CO . . . . .	522	16,080	3.4	MI . . . . .	1,075	19,790	2.0	SC . . . . .	227	6,920	1.6
CT . . . . .	428	11,830	3.4	MN . . . . .	504	13,220	2.6	SD <sup>2</sup> . . . . .	38	1,220	1.5
DE . . . . .	128	3,880	4.6	MS . . . . .	168	3,910	1.3	TN . . . . .	377	11,380	1.9
DC . . . . .	307	13,750	23.5	MO . . . . .	489	10,340	1.8	TX . . . . .	1,781	41,420	1.8
FL . . . . .	977	22,020	1.2	MT . . . . .	59	2,480	2.6	UT . . . . .	290	6,730	2.6
GA . . . . .	742	14,890	1.6	NE . . . . .	166	3,320	1.9	VT <sup>2</sup> . . . . .	37	2,070	3.3
HI . . . . .	99	3,230	2.5	NV . . . . .	90	2,940	1.2	VA . . . . .	695	22,800	3.0
ID . . . . .	56	3,190	2.2	NH . . . . .	117	2,760	2.1	WA . . . . .	495	19,900	3.1
IL . . . . .	1,332	26,800	2.1	NJ . . . . .	628	23,610	2.7	WV <sup>2</sup> . . . . .	108	2,510	1.4
IN . . . . .	686	11,380	1.8	NM . . . . .	176	9,960	5.1	WI . . . . .	532	11,200	2.0
IA . . . . .	355	5,740	1.9	NY . . . . .	2,419	50,760	2.6	WY <sup>2</sup> . . . . .	36	990	1.9
				NC . . . . .	863	21,670	2.4				

<sup>1</sup> Data for 2006 S&E doctorate holders are preliminary. <sup>2</sup> Estimates for S&E doctorate holders may vary between 10 percent and 25 percent because geography is not part of sample design.

Source: National Science Foundation, *Science and Engineering Indicators, 2008*, (biennial), published January 2008. See <<http://nsf.gov/statistics/seind08/>>.



**Table 784. Scientists and Engineers by Selected Demographic Characteristics: 2006**

[In thousands (22,630 represents 22,630,000). Scientists and engineers refer to all persons who have received a bachelor's degree or higher in science and engineering (S&E), or S&E related field, plus persons holding a non-S&E degree or higher, employed in S&E or S&E related field]

Characteristic	Both sexes			Characteristic	Both sexes		
	Female	Male	Total		Female	Male	Total
<b>All scientists and engineers . . .</b>	<b>22,630</b>	<b>10,230</b>	<b>12,400</b>				
<b>Age:</b>				<b>Highest degree attained</b>			
Under 30 years . . . . .	2,732	1,542	1,190	Bachelor's . . . . .	13,228	6,223	7,005
30-39 years . . . . .	5,302	2,596	2,705	Master's . . . . .	6,411	3,039	3,373
40-49 years . . . . .	5,849	2,699	3,150	Doctorate . . . . .	1,018	308	710
50-59 years . . . . .	5,400	2,303	3,097	Professional . . . . .	1,973	660	1,312
60-69 years . . . . .	2,497	835	1,662	<b>Citizenship status</b>			
70 years or older . . . . .	851	254	596	U.S. citizen, native . . . . .	19,131	8,743	10,387
<b>Race/ethnicity:</b>				U.S. citizen, naturalized . . . . .	2,373	1,062	1,311
American Indian/Alaska Native . .	102	51	50	Non-U.S. citizen, permanent resident . . . . .	835	330	505
Asian . . . . .	2,255	994	1,261	Non-U.S. citizen, temporary resident . . . . .	291	95	196
Black . . . . .	1,258	738	520	<b>Marital status</b>			
Native Hawaiian/Other Pacific Islander . . . . .	85	33	53	Married . . . . .	16,100	6,655	9,445
White . . . . .	17,420	7,670	9,751	Living in marriage-like relationship . . . . .	892	482	410
Multiple race . . . . .	316	156	159	Widowed . . . . .	356	245	111
Hispanic, any race . . . . .	1,193	588	605	Separated . . . . .	243	131	111
<b>Children in the home?</b>				Divorced . . . . .	1,518	887	631
Yes . . . . .	10,966	5,015	5,951	Never married . . . . .	3,521	1,829	1,692
No . . . . .	11,664	5,215	6,449				

Source: National Science Foundation/Division of Science Resource Statistics, Scientists and Engineers Statistical Data System (SESTAT) March 2008; see <<http://www.nsf.gov/statistics/sestat/>>.

**Table 785. Doctorates Awarded by Field of Study and Year of Doctorate: 2000 to 2006**

Field of study	2000	2001	2002	2003	2004	2005	2006
<b>Total, all fields . . . . .</b>	<b>41,365</b>	<b>40,737</b>	<b>40,025</b>	<b>40,757</b>	<b>42,123</b>	<b>43,385</b>	<b>45,596</b>
<b>Science and engineering, total . . . . .</b>	<b>25,966</b>	<b>25,528</b>	<b>24,608</b>	<b>25,281</b>	<b>26,275</b>	<b>27,989</b>	<b>29,854</b>
Engineering, total . . . . .	5,323	5,511	5,079	5,280	5,777	6,425	7,191
Aeronautical/astronautical . . . . .	214	203	209	200	201	219	238
Chemical . . . . .	726	730	705	649	726	875	893
Civil . . . . .	556	595	627	673	673	758	803
Electrical . . . . .	1,543	1,579	1,394	1,465	1,651	1,851	2,133
Industrial/manufacturing . . . . .	176	206	230	214	217	221	235
Materials/metallurgical . . . . .	451	497	396	474	511	540	624
Mechanical . . . . .	864	953	827	814	852	978	1,148
Other . . . . .	793	748	691	791	946	983	1,117
Science, total . . . . .	20,643	20,017	19,529	20,001	20,498	21,564	22,663
Biological/agricultural sciences . . . . .	6,890	6,672	6,703	6,755	6,985	7,406	7,664
Agricultural sciences . . . . .	1,037	975	1,009	1,060	1,045	1,038	1,033
Biological sciences . . . . .	5,853	5,697	5,694	5,695	5,940	6,368	6,631
Earth, atmospheric, and ocean sciences, total . . . . .	694	660	689	683	686	714	757
Atmospheric . . . . .	143	116	117	139	126	145	147
Earth . . . . .	387	393	426	374	420	420	469
Ocean sciences . . . . .	164	151	146	170	140	149	141
Mathematical/computer sciences, total . . . . .	1,910	1,840	1,730	1,859	2,024	2,335	2,779
Computer sciences . . . . .	860	830	810	866	948	1,130	1,452
Mathematics . . . . .	1,050	1,010	920	993	1,076	1,205	1,327
Physical sciences, total . . . . .	3,378	3,364	3,186	3,289	3,338	3,645	3,925
Astronomy . . . . .	185	186	141	167	165	186	197
Chemistry . . . . .	1,989	1,981	1,922	2,041	1,987	2,126	2,363
Physics . . . . .	1,204	1,197	1,123	1,081	1,186	1,333	1,365
Psychology . . . . .	3,616	3,399	3,207	3,276	3,327	3,323	3,263
Social sciences, total . . . . .	4,155	4,082	4,014	4,139	4,138	4,141	4,275
Economics . . . . .	1,086	1,081	1,027	1,050	1,069	1,183	1,142
Political science . . . . .	986	984	939	1,025	946	990	998
Sociology . . . . .	637	579	567	612	599	556	602
Other social sciences . . . . .	1,446	1,438	1,481	1,452	1,524	1,412	1,533
<b>Nonscience and engineering, total . . . . .</b>	<b>15,399</b>	<b>15,209</b>	<b>15,417</b>	<b>15,476</b>	<b>15,848</b>	<b>15,396</b>	<b>15,742</b>
Education . . . . .	6,436	6,349	6,503	6,643	6,635	6,226	6,123
Health . . . . .	1,591	1,541	1,654	1,633	1,720	1,785	1,906
Humanities . . . . .	5,213	5,178	5,051	5,020	5,013	4,949	5,122
Professional/other/unknown . . . . .	2,159	2,141	2,209	2,180	2,480	2,436	2,591

Source: U.S. National Science Foundation, *Science and Engineering Doctorate Awards*, annual. See also <<http://www.nsf.gov/statistics/nsf037035/>> (released December 2007).

**Table 786. Civilian Employment of Scientists, Engineers, and Related Occupations by Occupation and Industry: 2006**

[In thousands (263.7 represents 263,700). Based on sample and subject to sampling error. For details, see source]

Occupation	Total employment, all workers <sup>1</sup>	Wage and salary workers						Self employed <sup>3</sup>
		Mining (NAICS 21) <sup>2</sup>	Construction (NAICS 23)	Manufacturing (NAICS 31-33)	Information (NAICS 51)	Professional, scientific and technical services (NAICS 54)	Government (NAICS 99)	
Computer and information systems managers . . . . .	263.7	0.5	0.7	24.7	31.0	65.3	18.1	3.6
Engineering managers . . . . .	187.1	2.1	5.4	80.9	5.2	55.9	16.5	0.1
Natural science managers . . . . .	40.7	0.3	(NA)	5.5	0.2	14.6	14.3	0.2
Computer and mathematical scientists . . .	3,313.2	8.4	7.7	268.3	413.2	1,004.6	240.5	130.9
Computer specialists . . . . .	3,199.6	0.4	7.5	262.4	406.2	978.8	221.5	129.5
Mathematical science occupations . . . . .	113.6	(NA)	0.2	5.9	7.1	25.7	19.0	1.5
Surveyors, cartographers, and photogrammetrists . . . . .	72.2	0.8	4.1	(NA)	(NA)	52.2	9.5	2.6
Engineers <sup>4</sup> . . . . .	1,511.5	21.0	40.3	563.7	41.3	430.6	180.0	45.7
Aerospace engineers . . . . .	89.8	(NA)	(NA)	58.4	(NA)	15.9	9.1	1.3
Civil engineers . . . . .	256.3	0.5	24.3	2.7	1.1	130.9	69.1	12.5
Computer and hardware engineers . . . . .	78.5	(NA)	(NA)	33.8	(NA)	23.3	4.5	2.8
Electrical and electronics engineers . . . .	291.2	0.2	4.9	103.2	30.6	70.8	26.1	6.3
Industrial engineers <sup>5</sup> . . . . .	226.7	2.3	5.9	149.5	3.0	29.2	5.2	2.1
Mechanical engineers . . . . .	225.8	0.8	2.9	120.6	0.3	63.2	11.9	5.1
Drafters, engineering, and mapping technicians <sup>6</sup> . . . . .	839.8	4.9	25.2	240.4	24.2	309.3	107.6	20.9
Engineering technicians . . . . .	511.0	3.6	4.8	178.0	21.8	126.5	90.7	4.4
Surveying and mapping technicians . . . . .	75.6	0.6	0.9	0.2	0.4	54.2	11.6	3.2
Life, physical, and social science occupations . . . . .	1,406.9	18.3	3.6	151.1	30.0	346.1	302.4	97.4
Life scientists . . . . .	258.5	(NA)	(NA)	31.1	(NA)	60.8	66.9	11.5
Physical scientists . . . . .	266.8	8.7	0.4	42.4	1.9	98.4	73.9	4.7
Social scientists and related occupations . . . . .	530.2	(NA)	2.9	24.2	27.4	100.0	75.4	77.7
Life, physical, and social science technicians . . . . .	351.4	9.2	0.4	53.5	(NA)	86.9	86.2	3.5

NA Not available. <sup>1</sup> Standard Occupational Classification system categorizes workers in 1 of 801 detailed occupations. For a list of occupations, see <[http://bls.gov/oes/current/oes\\_stru.htm](http://bls.gov/oes/current/oes_stru.htm)>. <sup>2</sup> Includes oil and gas extraction. <sup>3</sup> Includes secondary jobs and unpaid private household employment. <sup>4</sup> Includes kinds of engineers not shown separately. <sup>5</sup> Includes health and safety engineers. <sup>6</sup> Includes other drafters, technicians, and mapping technicians.

Source: U.S. Bureau of Labor Statistics, *National Employment Matrix*, February 2008. (Data collected biennially.) For more information, see <<http://www.bls.gov/emp/empolis.htm>>.

**Table 787. Employment and Earnings in Science & Engineering (S&E) Occupations by Industry: 2006**

[As of May 2006. Industries ordered by Science and Engineering share of total employment. See headnote, Table 788]

Industry	2002 NAICS code	Workers employed (number)		S&E workers as percent of all employed	Mean earnings in S&E occupations (dollars)
		All occupations	S&E occupations		
Computer systems design and related services . . . . .	5415	1,254,320	609,590	48.6	75,040
Software publishers . . . . .	5112	240,130	116,260	48.4	79,120
Scientific research and development services . . . . .	5417	586,220	247,310	42.2	81,220
Computer and peripheral equipment manufacturing . . . . .	3341	199,370	79,040	39.6	90,710
Internet service providers and Web search portals . . . . .	5181	119,560	46,120	38.6	69,720
Data processing, hosting, and related services . . . . .	5182	264,320	83,470	31.6	70,460
Internet publishing and broadcasting . . . . .	5161	33,220	9,810	29.5	69,800
Architectural, engineering, and related services . . . . .	5413	1,361,280	397,910	29.2	74,570
Communications equipment manufacturing . . . . .	3342	144,200	39,270	27.2	83,400
Navigational, measuring, electromedical, and control instruments manufacturing . . . . .	3345	435,510	117,950	27.1	82,190
Aerospace product and parts manufacturing . . . . .	3364	464,990	114,620	24.6	80,410
Securities and commodity exchanges . . . . .	5232	8,850	1,930	21.8	74,000
Semiconductor and other electronic component manufacturing . . . . .	3344	452,060	93,940	20.8	83,490
Pharmaceutical and medicine manufacturing . . . . .	3254	288,270	55,640	19.3	73,710
Other telecommunications . . . . .	5179	5,300	980	18.5	73,820

Source: National Science Foundation, *Science and Engineering Indicators 2008*, January 2008. (biennial). For more information, see <<http://www.bls.gov/oes/home.htm>>.

**Table 788. Individuals Employed in Science and Engineering (S&E) Occupations as Share of Workforce by State and Other Areas: 2007**

[In thousands (7,449.0 represents 7,449,000), except as noted. As of May 2007. The Occupational Employment Statistics Survey (OES) collects data in six semiannual panels over a 3-year period on occupational employment and wages of wage and salary workers in nonfarm establishments in the United States, Guam, Puerto Rico, and the Virgin Islands. The OES survey uses the Standard Occupational Classification (SOC) system to categorize workers in 1 of 801 detailed occupations. For a list of occupations see <<http://bls.gov/oes/current/oes/nat.htm>>. For more information about methodology, see <[http://bls.gov/oes\\_nat.htm](http://bls.gov/oes_nat.htm)>]

State	S&E occupations <sup>1</sup>	Employed workforce	Workforce in S&E occupations <sup>1</sup> (percent)	State	S&E occupations <sup>1</sup>	Employed workforce	Workforce in S&E occupations <sup>1</sup> (percent)
<b>United States . . . . .</b>	<b>7,449.0</b>	<b>135,474.0</b>	<b>5.5</b>	Nebraska . . . . .	41.7	914.7	4.6
Alabama . . . . .	91.3	1,932.0	4.7	Nevada . . . . .	39.5	1,285.5	3.1
Alaska . . . . .	17.9	301.9	5.9	New Hampshire . . . . .	36.7	632.6	5.8
Arizona . . . . .	145.5	2,648.0	5.5	New Jersey . . . . .	249.6	3,980.1	6.3
Arkansas . . . . .	40.9	1,172.8	3.5	New Mexico . . . . .	47.0	798.6	5.9
California . . . . .	975.0	15,202.5	6.4	New York . . . . .	436.8	8,516.0	5.1
Colorado . . . . .	176.6	2,258.2	7.8	North Carolina . . . . .	191.6	4,013.5	4.8
Connecticut . . . . .	107.9	1,682.2	6.4	North Dakota . . . . .	12.8	342.0	3.7
Delaware . . . . .	29.7	426.0	7.0	Ohio . . . . .	256.0	5,341.4	4.8
District of Columbia . . . . .	73.7	621.0	11.9	Oklahoma . . . . .	68.0	1,528.9	4.4
Florida . . . . .	336.7	7,963.0	4.2	Oregon . . . . .	95.6	1,682.2	5.7
Georgia . . . . .	184.0	4,058.4	4.5	Pennsylvania . . . . .	285.6	5,663.1	5.0
Hawaii . . . . .	24.7	610.3	4.0	Rhode Island . . . . .	22.8	485.9	4.7
Idaho . . . . .	37.7	642.0	5.9	South Carolina . . . . .	76.8	1,878.0	4.1
Illinois . . . . .	294.5	5,894.7	5.0	South Dakota . . . . .	14.3	389.4	3.7
Indiana . . . . .	113.8	2,928.8	3.9	Tennessee . . . . .	97.3	2,739.2	3.6
Iowa . . . . .	61.3	1,488.4	4.1	Texas . . . . .	599.6	10,061.8	6.0
Kansas . . . . .	65.7	1,347.7	4.9	Utah . . . . .	71.8	1,206.2	6.0
Kentucky . . . . .	64.2	1,801.8	3.6	Vermont . . . . .	16.1	301.1	5.3
Louisiana . . . . .	61.8	1,847.2	3.3	Virginia . . . . .	312.4	3,645.3	8.6
Maine . . . . .	23.2	600.0	3.9	Washington . . . . .	236.3	2,811.7	8.4
Maryland . . . . .	204.9	2,551.9	8.0	West Virginia . . . . .	23.7	713.2	3.3
Massachusetts . . . . .	260.2	3,207.8	8.1	Wisconsin . . . . .	136.1	2,768.8	4.9
Michigan . . . . .	276.8	4,210.6	6.6	Wyoming . . . . .	11.6	273.2	4.2
Minnesota . . . . .	173.1	2,687.7	6.4	Guam . . . . .	1.8	57.9	3.2
Mississippi . . . . .	37.0	1,129.0	3.3	Puerto Rico . . . . .	35.0	1,015.0	3.4
Missouri . . . . .	132.5	2,732.9	4.8	Virgin Islands . . . . .	1.0	46.9	2.2
Montana . . . . .	20.9	435.5	4.8				

<sup>1</sup> Science and Engineering includes those occupations listed under SOC11-3021, SOC11-9041, SOC11-9121, SOC15-0000, SOC 17-0000, and SOC 19-0000.

Source: U.S. Bureau of Labor Statistics, *May 2007 National Occupational Employment and Wage Estimates*;

**Table 789. Research and Development (R&D) Scientists and Engineers—Employment and Cost by Industry: 2004 to 2006**

[1,133.7 represents 1,133,700]

Industry	NAICS <sup>1</sup> code	Employed scientists and engineers <sup>2</sup> (1,000)			Cost per scientist or engineer, constant (2000) dollars <sup>3, 4</sup> (\$1,000)		
		2004	2005	2006	2004	2005	2006
<b>All industries<sup>5</sup></b>	<b>(X)</b>	<b>1,133.7</b>	<b>1,104.5</b>	<b>1,116.6</b>	<b>180.7</b>	<b>192.9</b>	<b>202.6</b>
Chemicals . . . . .	325	105.0	118.3	123.2	301.4	329.4	331.8
Machinery . . . . .	333	59.0	61.1	62.3	109.4	125.6	141.9
Electrical equipment, appliances, and components . . . . .	335	17.9	18.7	16.9	(D)	(D)	(D)
Motor vehicles, trailers, and parts . . . . .	3361-3363	(NA)	42.0	42.0	(D)	(D)	(D)
Aerospace products and parts . . . . .	3364	39.3	39.7	39.5	319.3	336.3	361.3
Software publishing . . . . .	5112	100.1	93.4	46.5	168.2	163.0	174.9
Architectural, engineering, and related services . . . . .	5413	39.9	35.8	41.2	111.3	129.7	147.1
Computer systems design and related services . . . . .	5415	69.7	82.4	93.1	163.3	158.9	158.0
Scientific R&D services . . . . .	5417	45.8	43.7	44.3	292.2	264.7	299.7

D Withheld to avoid disclosure. NA Not available. X Not applicable. <sup>1</sup> North American Industry Classification System 1997 (NAICS); see text, Section 15. <sup>2</sup> The mean number of full-time equivalent R&D scientists and engineers employed in January of the year shown and the following January. <sup>3</sup> Based on gross domestic product implicit price deflator. <sup>4</sup> Represents the arithmetic mean of the numbers of R&D scientists and engineers reported in each industry for January in 2 consecutive years divided into total R&D expenditures in each industry. <sup>5</sup> Includes other industries not shown separately.

Source: U.S. National Science Foundation, *Research and Development in Industry*, annual. See also <<http://www.nsf.gov/statistics/showpub.cfm?TopID=5&SubID=36>>.

**Table 790. Federal Outlays for General Science, Space, and Other Technology, 1970 to 2007, and Projections, 2008 and 2009**

[In billions of dollars (4.5 represents \$4,500,000,000). For fiscal years ending in year shown; see text Section 8]

Year	Current dollars			Constant (2000) dollars		
	Total	General science/basic research	Space and other technologies	Total	General science/basic research	Space and other technologies
1970	4.5	0.9	3.6	19.3	4.0	15.2
1980	5.8	1.4	4.5	12.0	2.8	9.1
1985	8.6	2.0	6.6	13.7	3.2	10.5
1990	14.4	2.8	11.6	20.0	3.9	16.1
1995 <sup>1</sup>	16.7	4.1	12.6	18.7	4.6	14.1
2000	18.6	6.2	12.4	18.6	6.2	12.4
2001	19.7	6.5	13.2	19.3	6.4	12.9
2002	20.7	7.2	13.5	19.7	6.9	12.8
2003	20.8	7.9	12.9	19.2	7.3	11.9
2004	23.0	8.3	14.6	20.3	7.4	13.0
2005	23.6	8.8	14.8	20.0	7.4	12.5
2006	23.5	9.0	14.5	19.2	7.4	11.9
2007	25.5	10.2	15.3	20.7	8.3	12.4
2008, proj.	27.4	10.7	16.7	21.8	8.5	13.3
2009, proj.	29.0	11.5	17.6	22.5	8.9	13.6

<sup>1</sup> Due to the effects of the Credit Reform Act of 1990 on the measurement and classification of federal credit activities, the discretionary outlays for years prior to 1995 are not strictly comparable to those for 1995 and after. However, the discretionary outlays shown for 1995 are no more than \$1 billion higher than they would have been if measured on the same (pre-credit reform) basis as the 1990 outlays.

Source: U.S. Office of Management and Budget, *Budget of the United States, Historical Tables, Fiscal Year 2009*, annual. See also <<http://www.gpoaccess.gov/usbudget/fy08/hist.html>>.

**Table 791. U.S. and Worldwide Commercial Space Industry Revenue by Type: 2000 to 2006**

[In billions of dollars (19.3 represents \$19,300,000,000). For calendar years]

Industry	U.S.				World			
	2000	2004	2005	2006	2000	2004	2005	2006
<b>Revenue, total</b>	<b>19.3</b>	<b>26.5</b>	<b>30.8</b>	<b>(NA)</b>	<b>64.2</b>	<b>82.7</b>	<b>88.8</b>	<b>106.1</b>
Satellite manufacturing <sup>1</sup>	6.0	3.9	3.2	5.0	11.5	10.2	7.8	12.0
Launch industry	2.7	1.5	1.5	1.0	5.3	2.8	3.0	2.7
Satellite services <sup>2</sup>	10.6	21.1	26.1	(NA)	28.9	46.9	52.8	62.6
Ground equipment manufacturing <sup>3</sup>	(NA)	(NA)	(NA)	(NA)	18.5	22.8	25.2	28.8

NA Not available. <sup>1</sup> Includes revenues from the construction and sale of satellites to both commercial and government. <sup>2</sup> Includes revenues derived from transponder leasing and subscription/retail services such as direct-to-home television, satellite radio, remote sensing, and satellite mobile and data communications. <sup>3</sup> Includes revenues from the manufacture of gateways and satellite control stations, satellite news-gathering trucks, very small aperture terminals, direct-to-home television equipment and mobile satellite phones.

Source: Satellite Industry Association/Futron Corporation, Bethesda, MD, *2006-2007 Satellite Industry Indicators Survey* (copyright). See also <<http://www.sia.org/>>.

**Table 792. National Aeronautics and Space Administration—Budget Appropriations, 2008, and Projections, 2009 to 2013**

[In millions of dollars (17,309.4 represents \$17,309,400,000)]

Item	2008	2009	2010	2011	2012	2013
<b>Appropriations, total</b>	<b>17,309.4</b>	<b>17,614.2</b>	<b>18,026.3</b>	<b>18,460.4</b>	<b>18,905.0</b>	<b>19,358.8</b>
Science	4,706.2	4,441.5	4,482.0	4,534.9	4,643.4	4,761.6
Earth science	1,280.3	1,367.5	1,350.7	1,250.9	1,264.4	1,290.3
Heliophysics	840.9	1,577.3	598.9	689.4	741.2	746.6
Planetary science	1,247.5	1,334.2	1,410.1	1,537.5	1,570.0	1,608.7
Astrophysics	1,337.5	1,162.5	1,122.4	1,057.1	1,067.7	1,116.0
Exploration systems	3,143.1	3,500.5	3,737.7	7,048.2	7,116.8	7,666.8
Constellation systems	2,471.9	3,048.2	3,252.8	6,479.5	6,521.4	7,080.5
Advanced capabilities	671.1	452.3	484.9	568.7	595.5	586.3
Aeronautics	511.7	446.5	447.5	452.4	456.7	467.7
Cross-agency support programs	3,242.9	3,299.9	3,323.9	3,363.7	3,436.1	3,511.3
Center management	2,013.0	2,045.6	2,046.7	2,088.0	2,155.3	2,211.6
Agency management	830.2	945.6	945.5	939.8	950.5	961.3
Institutional investments	319.7	308.7	331.7	335.9	330.4	338.3
Congressionally directed items	80.0	—	—	—	—	—
Education	146.8	115.6	126.1	123.8	123.8	123.8
Space operations	5,526.2	5,774.7	5,872.8	2,900.1	3,089.9	2,788.5
Space shuttle	3,266.7	2,981.7	2,983.7	95.7	—	—
International space station	1,813.2	2,060.2	2,277.0	2,176.4	2,448.2	2,143.1
Space and flight support	446.3	1,732.8	612.1	628.0	641.7	645.4
Inspector General	32.6	35.5	36.4	37.3	38.3	39.2

— Represents zero. <sup>1</sup> Deep Space and Near Earth Networks transfers \$256 million to Space and Flight Support in FY 2009. Source: U.S. National Aeronautics and Space Administration, *Fiscal Year 2009 Budget* <<http://www.nasa.gov/about/budget/index.html>> (accessed 11 February 2008).