

Appendix table 5-1

Academic R&D expenditures directed to basic research, applied research, and development: 1970–2004

(Percent distribution)

Year	All academic R&D	Basic research	Applied research	Development
1970.....	100.0	76.7	18.7	4.6
1971.....	100.0	76.7	19.5	3.8
1972.....	100.0	73.9	22.5	3.7
1973.....	100.0	71.2	24.6	4.3
1974.....	100.0	71.0	24.7	4.4
1975.....	100.0	69.5	26.2	4.4
1976.....	100.0	68.6	26.7	4.7
1977.....	100.0	68.3	25.9	5.8
1978.....	100.0	67.6	25.0	7.5
1979.....	100.0	67.0	24.8	8.2
1980.....	100.0	66.8	25.1	8.0
1981.....	100.0	66.9	25.1	8.0
1982.....	100.0	67.0	25.2	7.9
1983.....	100.0	66.9	25.6	7.5
1984.....	100.0	67.1	25.5	7.4
1985.....	100.0	68.1	24.5	7.3
1986.....	100.0	68.8	24.1	7.1
1987.....	100.0	67.5	25.1	7.4
1988.....	100.0	65.7	26.6	7.7
1989.....	100.0	65.4	26.8	7.8
1990.....	100.0	65.7	26.0	8.3
1991.....	100.0	66.3	25.3	8.4
1992.....	100.0	66.6	25.2	8.2
1993.....	100.0	66.6	25.1	8.3
1994.....	100.0	66.7	24.9	8.4
1995.....	100.0	67.0	25.0	8.0
1996.....	100.0	67.7	24.8	7.6
1997.....	100.0	70.9	22.2	6.9
1998.....	100.0	73.8	20.0	6.2
1999.....	100.0	74.3	20.7	4.9
2000.....	100.0	74.5	21.7	3.8
2001.....	100.0	74.7	21.5	3.8
2002.....	100.0	74.9	21.5	3.6
2003.....	100.0	74.8	21.6	3.6
2004.....	100.0	74.8	21.7	3.5

NOTES: Data for 2003 and 2004 are preliminary. Expenditure levels for academic R&D refer to calendar years and are approximations based on fiscal year data. Because of changes in estimation procedures, character of work data before FY 1998 not comparable with that of later years. For details of methodological issues of measurement, see National Science Foundation, Division of Science Resources Statistics (NSF/SRS), *National Patterns of Research and Development Resources: Methodology Report* (forthcoming). Data based on annual reports by performers. See appendix tables 4-3, 4-7, 4-11, and 4-15.

SOURCE: NSF/SRS, *National Patterns of R&D Resources* (annual series).

Appendix table 5-2
Support for academic R&D, by sector: 1972–2003

(Page 1 of 2)

Year	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
Millions of current dollars						
1972.....	2,630	1,795	270	74	305	187
1973.....	2,884	1,985	295	84	318	202
1974.....	3,023	2,032	307	96	370	218
1975.....	3,409	2,288	332	113	417	259
1976.....	3,729	2,512	364	123	446	285
1977.....	4,067	2,726	374	139	514	314
1978.....	4,625	3,059	414	170	623	359
1979.....	5,366	3,598	472	193	735	368
1980.....	6,063	4,098	491	236	835	403
1981.....	6,847	4,571	546	291	1,004	435
1982.....	7,324	4,768	616	337	1,111	491
1983.....	7,882	4,989	626	389	1,302	576
1984.....	8,620	5,431	690	475	1,411	613
1985.....	9,687	6,064	752	560	1,617	694
1986.....	10,928	6,712	915	700	1,869	732
1987.....	12,153	7,343	1,023	790	2,168	828
1988.....	13,463	8,193	1,106	872	2,356	935
1989.....	14,977	8,991	1,224	994	2,698	1,071
1990.....	16,286	9,638	1,324	1,127	3,006	1,191
1991.....	17,585	10,234	1,474	1,204	3,367	1,307
1992.....	18,818	11,093	1,491	1,279	3,547	1,409
1993.....	19,951	11,957	1,559	1,360	3,589	1,486
1994.....	21,027	12,649	1,554	1,422	3,827	1,574
1995.....	22,170	13,332	1,689	1,489	4,047	1,613
1996.....	23,046	13,840	1,811	1,605	4,170	1,619
1997.....	24,370	14,314	1,909	1,737	4,698	1,712
1998.....	25,855	15,150	1,944	1,888	5,002	1,870
1999.....	27,530	16,101	2,021	2,033	5,380	1,994
2000.....	30,067	17,535	2,200	2,156	5,923	2,254
2001.....	32,797	19,223	2,321	2,220	6,607	2,426
2002.....	36,370	21,860	2,506	2,187	7,128	2,689
2003.....	40,077	24,734	2,653	2,162	7,683	2,845
Millions of constant 2000 dollars						
1972.....	8,854	6,042	907	250	1,026	628
1973.....	9,297	6,400	950	271	1,026	650
1974.....	9,088	6,110	923	289	1,112	655
1975.....	9,283	6,231	903	308	1,137	704
1976.....	9,472	6,381	924	313	1,132	723
1977.....	9,611	6,442	884	328	1,215	742
1978.....	10,239	6,772	917	376	1,379	795
1979.....	10,995	7,373	967	396	1,506	754
1980.....	11,421	7,720	925	444	1,574	759
1981.....	11,748	7,844	936	500	1,722	746
1982.....	11,761	7,657	990	541	1,784	789
1983.....	12,122	7,674	963	598	2,002	886
1984.....	12,787	8,055	1,024	705	2,092	910
1985.....	13,917	8,712	1,080	804	2,323	997
1986.....	15,342	9,423	1,285	982	2,624	1,028
1987.....	16,628	10,047	1,400	1,081	2,967	1,133
1988.....	17,859	10,868	1,467	1,157	3,125	1,241
1989.....	19,124	11,480	1,562	1,269	3,445	1,367
1990.....	20,051	11,866	1,630	1,387	3,701	1,467
1991.....	20,867	12,144	1,749	1,429	3,995	1,550
1992.....	21,783	12,840	1,725	1,480	4,106	1,630
1993.....	22,590	13,538	1,765	1,540	4,064	1,683
1994.....	23,303	14,018	1,722	1,576	4,242	1,745
1995.....	24,054	14,464	1,833	1,615	4,391	1,750
1996.....	24,544	14,740	1,929	1,710	4,442	1,724
1997.....	25,508	14,983	1,999	1,818	4,917	1,792

Appendix table 5-2
Support for academic R&D, by sector: 1972–2003

(Page 2 of 2)

Year	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
Millions of constant 2000 dollars						
1998.....	26,726	15,661	2,009	1,952	5,171	1,933
1999.....	28,090	16,429	2,062	2,074	5,490	2,035
2000.....	30,067	17,535	2,200	2,156	5,923	2,254
2001.....	32,058	18,790	2,268	2,170	6,458	2,372
2002.....	34,882	20,965	2,403	2,098	6,836	2,579
2003.....	37,762	23,305	2,500	2,037	7,240	2,680
Percent distribution						
1972.....	100.0	68.2	10.2	2.8	11.6	7.1
1973.....	100.0	68.8	10.2	2.9	11.0	7.0
1974.....	100.0	67.2	10.2	3.2	12.2	7.2
1975.....	100.0	67.1	9.7	3.3	12.2	7.6
1976.....	100.0	67.4	9.8	3.3	11.9	7.6
1977.....	100.0	67.0	9.2	3.4	12.6	7.7
1978.....	100.0	66.1	9.0	3.7	13.5	7.8
1979.....	100.0	67.1	8.8	3.6	13.7	6.9
1980.....	100.0	67.6	8.1	3.9	13.8	6.6
1981.....	100.0	66.8	8.0	4.3	14.7	6.4
1982.....	100.0	65.1	8.4	4.6	15.2	6.7
1983.....	100.0	63.3	7.9	4.9	16.5	7.3
1984.....	100.0	63.0	8.0	5.5	16.4	7.1
1985.....	100.0	62.6	7.8	5.8	16.7	7.2
1986.....	100.0	61.4	8.4	6.4	17.1	6.7
1987.....	100.0	60.4	8.4	6.5	17.8	6.8
1988.....	100.0	60.9	8.2	6.5	17.5	6.9
1989.....	100.0	60.0	8.2	6.6	18.0	7.1
1990.....	100.0	59.2	8.1	6.9	18.5	7.3
1991.....	100.0	58.2	8.4	6.8	19.1	7.4
1992.....	100.0	58.9	7.9	6.8	18.9	7.5
1993.....	100.0	59.9	7.8	6.8	18.0	7.4
1994.....	100.0	60.2	7.4	6.8	18.2	7.5
1995.....	100.0	60.1	7.6	6.7	18.3	7.3
1996.....	100.0	60.1	7.9	7.0	18.1	7.0
1997.....	100.0	58.7	7.8	7.1	19.3	7.0
1998.....	100.0	58.6	7.5	7.3	19.3	7.2
1999.....	100.0	58.5	7.3	7.4	19.5	7.2
2000.....	100.0	58.3	7.3	7.2	19.7	7.5
2001.....	100.0	58.6	7.1	6.8	20.1	7.4
2002.....	100.0	60.1	6.9	6.0	19.6	7.4
2003.....	100.0	61.7	6.6	5.4	19.2	7.1

NOTE: See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2000 dollars.

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Appendix table 5-3

Federal and nonfederal R&D expenditures at academic institutions, by field and source of funds: 2003

Field	All R&D expenditures		Federal expenditures		Nonfederal expenditures	
	Millions of dollars	Percent distribution	Millions of dollars	Percent distribution	Millions of dollars	Percent distribution
All fields.....	40,077	100.0	24,734	100.0	15,343	100.0
Science	34,079	85.0	21,126	85.4	12,952	84.4
Physical sciences	3,273	8.2	2,353	9.5	920	6.0
Astronomy.....	392	1.0	272	1.1	121	0.8
Chemistry	1,220	3.0	816	3.3	404	2.6
Physics	1,420	3.5	1,088	4.4	332	2.2
Other.....	240	0.6	177	0.7	63	0.4
Mathematics	429	1.1	295	1.2	134	0.9
Computer sciences.....	1,304	3.3	936	3.8	368	2.4
Earth, atmospheric, and ocean sciences	2,188	5.5	1,440	5.8	748	4.9
Atmospheric sciences	396	1.0	297	1.2	98	0.6
Earth sciences.....	724	1.8	440	1.8	284	1.9
Ocean sciences.....	774	1.9	536	2.2	238	1.5
Other.....	294	0.7	166	0.7	128	0.8
Life sciences	23,764	59.3	14,645	59.2	9,119	59.4
Agricultural sciences	2,555	6.4	762	3.1	1,793	11.7
Biological sciences.....	7,392	18.4	5,017	20.3	2,375	15.5
Medical sciences.....	12,787	31.9	8,249	33.4	4,538	29.6
Other.....	1,030	2.6	617	2.5	413	2.7
Psychology	769	1.9	553	2.2	216	1.4
Social sciences.....	1,661	4.1	667	2.7	995	6.5
Economics	314	0.8	108	0.4	207	1.3
Political science	289	0.7	92	0.4	197	1.3
Sociology	372	0.9	183	0.7	189	1.2
Other.....	686	1.7	284	1.1	401	2.6
Other sciences	691	1.7	238	1.0	453	3.0
Engineering	5,999	15.0	3,608	14.6	2,391	15.6
Aeronautical/astronautical.....	402	1.0	306	1.2	96	0.6
Bioengineering/biomedical	314	0.8	190	0.8	123	0.8
Chemical	454	1.1	248	1.0	206	1.3
Civil.....	776	1.9	327	1.3	450	2.9
Electrical/electronic.....	1,402	3.5	925	3.7	477	3.1
Mechanical.....	822	2.1	533	2.2	290	1.9
Materials	535	1.3	303	1.2	232	1.5
Other.....	1,295	3.2	776	3.1	518	3.4

NOTES: Detail may not add to total because of rounding. See appendix table 5-2 for detail on nonfederal sources.

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Appendix table 5-4
Academic R&D funds provided by federal government, by field: Selected years, 1980–2003
 (Percent)

Field	1980	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All fields.....	67.6	59.2	58.2	58.9	59.9	60.2	60.1	60.1	58.7	58.6	58.5	58.3	58.6	60.1	61.7
Science	67.4	59.5	58.6	59.3	60.1	60.3	60.2	60.0	58.7	58.7	58.7	58.6	58.9	60.4	62.0
Physical sciences	81.9	72.8	71.4	71.8	71.0	71.8	72.6	72.2	71.0	71.0	71.5	70.6	70.3	70.6	71.9
Astronomy.....	75.6	66.1	64.4	66.5	63.8	67.7	68.2	66.1	63.7	62.2	70.9	71.8	68.7	69.0	69.2
Chemistry	77.7	68.7	67.3	68.1	68.2	68.2	69.1	69.0	67.2	67.0	67.2	65.6	65.5	65.3	66.9
Physics	86.8	77.5	77.1	76.9	75.3	76.0	77.0	76.7	75.9	75.8	75.6	74.7	74.7	75.8	76.6
Other.....	78.7	71.8	66.4	67.7	70.3	70.8	70.8	71.0	71.0	74.7	68.6	66.9	70.7	71.0	73.7
Mathematics	78.4	72.6	74.1	74.0	74.6	72.8	73.5	72.2	69.8	69.0	67.0	67.4	67.3	69.2	68.8
Computer sciences.....	70.4	66.5	67.0	68.4	69.7	71.5	70.9	72.7	71.4	68.8	67.7	66.6	67.4	68.4	71.8
Earth, atmospheric, and ocean sciences	73.1	63.7	62.7	63.7	66.0	67.6	67.1	67.6	66.1	66.3	65.2	64.2	64.8	64.0	65.8
Atmospheric sciences	84.1	75.7	74.1	72.1	76.3	79.4	78.6	78.4	76.0	77.8	77.5	77.5	77.3	73.3	75.2
Earth sciences.....	69.7	57.7	56.7	57.7	58.5	59.6	59.9	60.1	59.8	60.8	58.9	58.9	59.3	57.8	60.8
Ocean sciences.....	77.6	69.6	67.7	71.7	72.0	71.0	70.0	69.6	66.2	66.4	67.1	66.7	66.4	67.5	69.3
Other.....	59.1	50.8	52.7	51.5	58.4	66.6	65.3	67.1	66.9	65.1	60.1	55.8	58.5	58.3	56.6
Life sciences	64.9	58.3	57.2	58.0	58.9	58.8	58.4	58.2	57.1	57.1	57.3	57.6	58.3	60.0	61.6
Agricultural sciences	30.9	26.2	25.9	27.6	28.9	29.7	29.3	29.3	27.9	26.7	26.8	26.6	26.6	28.1	29.8
Biological sciences.....	74.0	64.5	63.7	64.7	65.3	65.7	64.9	64.7	64.2	64.1	64.0	65.1	65.1	67.0	67.9
Medical sciences.....	74.4	64.3	62.7	62.7	63.3	62.7	63.0	63.0	61.2	61.0	60.8	60.6	61.4	62.8	64.5
Other.....	67.3	59.1	60.0	58.2	59.3	58.8	56.7	58.0	56.9	55.5	58.2	56.8	59.2	59.6	59.9
Psychology	73.3	64.8	65.8	65.4	67.0	67.1	67.2	67.7	68.5	67.2	66.7	67.9	68.4	70.7	71.9
Social sciences.....	53.8	32.2	33.7	34.5	37.7	37.6	38.1	38.6	36.3	37.6	37.7	37.8	37.9	38.9	40.1
Economics	48.8	27.1	28.6	29.8	33.4	31.4	32.0	33.4	34.4	35.3	33.8	34.9	33.2	35.4	34.3
Political science	43.4	22.0	22.8	24.7	28.3	31.0	34.5	34.6	29.5	30.3	27.0	27.3	28.5	28.2	31.7
Sociology	65.0	45.5	46.3	50.1	49.7	49.1	48.5	51.6	46.9	47.1	44.9	45.5	45.3	47.9	49.1
Other.....	54.1	33.9	35.5	34.2	38.4	38.4	37.8	36.4	33.9	36.5	40.1	39.3	40.1	39.8	41.5
Other sciences	53.6	41.2	33.8	32.4	35.1	37.1	45.0	41.6	40.8	38.5	34.5	34.4	31.9	35.7	34.4
Engineering	68.6	57.4	56.4	57.2	58.9	59.4	59.8	60.2	58.8	57.8	57.4	56.6	56.8	58.5	60.1
Aeronautical/astronautical	79.5	77.7	76.4	76.7	75.2	76.1	76.2	73.5	74.2	68.4	70.4	70.7	75.1	72.1	76.0
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	61.9	55.5	52.9	52.3	56.9	59.4	60.8
Chemical	64.4	50.6	48.4	48.4	52.2	54.0	54.2	54.8	52.4	51.8	51.6	52.3	51.8	53.4	54.7
Civil.....	64.0	41.1	39.2	42.3	41.6	40.6	43.2	43.5	42.5	39.8	41.0	39.4	39.8	41.9	42.1
Electrical/electronic	75.7	65.1	64.2	63.9	65.7	65.8	66.4	67.6	66.3	66.4	64.1	62.7	62.4	62.8	66.0
Mechanical.....	67.0	61.0	59.7	59.7	64.2	65.2	65.2	64.5	62.3	61.8	62.1	60.6	60.6	65.1	64.8
Materials	NA	50.9	50.4	48.7	50.3	50.2	53.2	54.5	57.2	56.6	56.8	56.8	53.2	56.2	56.7
Other.....	65.7	54.6	54.8	57.6	58.9	60.1	58.4	59.7	55.8	55.4	55.9	56.4	56.4	58.1	60.0

NA = not available

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Science and Engineering Indicators 2006

Appendix table 5-5
Expenditures for academic R&D, by field: Selected years, 1973–2003

Field	1973	1980	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Millions of current dollars																
All fields.....	2,884	6,063	16,286	17,585	18,818	19,951	21,027	22,170	23,046	24,370	25,855	27,530	30,067	32,797	36,370	40,077
Science	2,551	5,201	13,630	14,679	15,756	16,795	17,672	18,655	19,338	20,531	21,786	23,269	25,513	27,778	30,848	34,079
Physical sciences	328	677	1,807	1,939	2,055	2,130	2,177	2,256	2,258	2,371	2,483	2,605	2,712	2,804	3,016	3,273
Astronomy.....	24	59	170	211	238	259	267	304	276	288	303	385	386	378	402	392
Chemistry	114	244	648	671	705	740	760	771	802	821	876	919	961	1,007	1,131	1,220
Physics	167	323	842	881	921	940	957	989	988	1,059	1,078	1,149	1,207	1,241	1,287	1,420
Other.....	23	52	147	176	191	191	193	191	193	204	226	153	158	178	196	240
Mathematics	37	78	222	230	248	272	282	279	288	289	310	313	341	360	388	429
Computer sciences.....	36	124	515	554	555	608	646	682	690	710	747	861	876	956	1,125	1,304
Earth, atmospheric, and ocean sciences.....	209	508	1,069	1,119	1,242	1,319	1,397	1,434	1,489	1,533	1,624	1,692	1,765	1,831	2,020	2,188
Atmospheric sciences.....	NA	76	173	175	194	210	203	208	224	246	269	288	288	301	341	396
Earth sciences.....	NA	188	355	384	413	417	456	457	446	450	514	545	563	555	640	724
Ocean sciences.....	NA	176	377	389	427	458	455	473	533	537	546	604	633	675	720	774
Other.....	209	68	164	171	207	234	283	295	285	301	296	254	281	300	318	294
Life sciences	1,530	3,218	8,725	9,472	10,196	10,851	11,468	12,188	12,716	13,591	14,596	15,630	17,468	19,216	21,421	23,764
Agricultural sciences.....	277	676	1,349	1,458	1,512	1,558	1,661	1,814	1,910	1,966	1,996	2,036	2,177	2,326	2,452	2,555
Biological sciences.....	557	1,028	2,859	3,064	3,304	3,536	3,711	3,836	3,912	4,183	4,584	5,039	5,619	5,945	6,581	7,392
Medical sciences.....	646	1,423	4,154	4,546	4,964	5,324	5,639	6,070	6,391	6,908	7,472	8,003	8,986	10,191	11,501	12,787
Other.....	51	91	363	404	417	433	457	468	503	534	545	552	686	753	887	1,030
Psychology.....	74	110	253	283	329	350	358	371	382	396	444	464	517	583	672	769
Social sciences.....	231	339	703	750	815	896	954	1,019	1,097	1,125	1,131	1,252	1,299	1,442	1,586	1,661
Economics	48	91	201	209	222	231	243	250	271	261	261	266	255	272	285	314
Political science	26	54	115	125	142	151	161	173	180	175	176	200	230	253	272	289
Sociology	62	87	132	156	163	183	196	215	231	257	253	271	301	329	378	372
Other.....	96	107	255	260	288	331	354	380	415	432	442	514	513	588	651	686
Other sciences	106	146	336	332	315	369	390	427	419	515	449	451	535	586	620	691
Engineering	333	862	2,656	2,907	3,062	3,156	3,355	3,515	3,707	3,839	4,069	4,261	4,554	5,019	5,522	5,999
Aeronautical/astronautical.....	NA	53	164	180	197	213	217	241	233	247	250	260	257	339	343	402
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	77	102	137	174	213	282	314
Chemical.....	NA	61	218	244	261	274	279	297	317	317	327	349	376	415	431	454
Civil.....	NA	83	284	315	340	371	403	431	455	472	495	529	601	664	717	776
Electrical/electronic.....	NA	183	663	679	704	698	745	819	888	942	1,042	1,017	1,118	1,163	1,306	1,402
Mechanical.....	NA	140	391	421	451	483	502	521	519	518	568	625	633	687	781	822
Materials.....	NA	NA	274	304	294	299	310	330	349	389	391	384	399	453	468	535
Other.....	333	341	663	764	817	818	899	877	946	878	894	960	998	1,085	1,195	1,295
Millions of constant 2000 dollars																
All fields.....	9,297	11,421	20,051	20,867	21,783	22,590	23,303	24,054	24,544	25,508	26,726	28,090	30,067	32,058	34,882	37,762
Science	8,223	9,798	16,781	17,418	18,238	19,017	19,585	20,240	20,596	21,490	22,519	23,742	25,513	27,152	29,585	32,110
Physical sciences	1,058	1,276	2,225	2,301	2,379	2,412	2,413	2,448	2,405	2,482	2,567	2,658	2,712	2,741	2,893	3,084
Astronomy.....	78	110	210	251	276	293	296	330	294	301	313	392	386	370	386	369
Chemistry	366	460	798	796	816	838	842	837	854	859	906	938	961	985	1,085	1,150
Physics	538	608	1,036	1,046	1,066	1,065	1,061	1,073	1,052	1,108	1,115	1,172	1,207	1,213	1,234	1,338
Other.....	76	98	181	208	221	216	214	208	205	214	233	156	158	174	188	226

Appendix table 5-5
Expenditures for academic R&D, by field: Selected years, 1973–2003

Field	1973	1980	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Millions of constant 2000 dollars																
Mathematics	120	147	273	273	287	308	312	302	307	303	321	320	341	352	372	404
Computer sciences.....	115	234	634	658	643	688	716	740	735	743	772	879	876	935	1,079	1,229
Earth, atmospheric, and ocean sciences.....	675	957	1,316	1,328	1,438	1,493	1,548	1,556	1,586	1,604	1,679	1,726	1,765	1,790	1,937	2,061
Atmospheric sciences	NA	143	213	207	225	238	225	226	239	257	278	294	288	295	327	373
Earth sciences.....	NA	354	437	456	478	472	505	496	475	471	531	557	563	543	614	682
Ocean sciences.....	NA	332	464	462	495	519	504	514	568	562	564	616	633	660	691	729
Other.....	675	128	202	202	240	265	313	320	303	315	306	259	281	293	305	277
Life sciences.....	4,932	6,062	10,743	11,240	11,803	12,287	12,709	13,223	13,543	14,226	15,088	15,948	17,468	18,783	20,544	22,391
Agricultural sciences.....	893	1,273	1,660	1,730	1,750	1,764	1,841	1,968	2,034	2,058	2,063	2,077	2,177	2,274	2,351	2,408
Biological sciences.....	1,795	1,937	3,520	3,636	3,825	4,004	4,112	4,162	4,166	4,379	4,738	5,141	5,619	5,812	6,311	6,965
Medical sciences.....	2,082	2,681	5,115	5,395	5,746	6,028	6,249	6,586	6,806	7,231	7,723	8,166	8,986	9,961	11,031	12,048
Other.....	163	171	447	479	482	490	507	508	536	559	563	563	686	736	851	971
Psychology.....	238	207	311	336	380	396	397	402	406	415	459	474	517	570	645	724
Social sciences.....	745	639	866	890	944	1,015	1,057	1,106	1,168	1,178	1,170	1,277	1,299	1,409	1,521	1,565
Economics	154	171	247	248	256	262	269	272	289	273	270	272	255	266	273	296
Political science	82	103	142	148	164	171	178	188	191	184	181	204	230	248	261	272
Sociology	198	164	162	185	189	208	217	233	246	269	261	277	301	321	363	350
Other.....	311	201	314	309	334	374	393	413	442	452	457	524	513	575	624	646
Other sciences	341	275	414	394	365	417	432	463	446	539	464	461	535	573	594	651
Engineering	1,074	1,624	3,270	3,449	3,545	3,573	3,718	3,814	3,948	4,019	4,206	4,348	4,554	4,906	5,296	5,652
Aeronautical/astronautical.....	NA	100	201	214	228	241	241	262	248	259	258	266	257	331	329	379
Bioengineering/biomedical.....	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	105	139	174	208	270	295
Chemical.....	NA	114	269	290	302	310	309	322	338	331	338	356	376	405	413	427
Civil.....	NA	157	350	374	393	421	446	467	484	494	512	540	601	649	688	731
Electrical/electronic.....	NA	345	816	806	815	790	825	888	945	986	1,077	1,037	1,118	1,137	1,252	1,321
Mechanical.....	NA	264	481	499	522	547	557	565	553	542	587	638	633	672	749	775
Materials.....	NA	NA	337	360	340	338	344	358	372	407	405	392	399	443	449	504
Other.....	1,074	643	817	906	946	926	996	952	1,008	919	924	979	998	1,061	1,146	1,220
Percent distribution																
All fields.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Science	88.4	85.8	83.7	83.5	83.7	84.2	84.0	84.1	83.9	84.2	84.3	84.5	84.9	84.7	84.8	85.0
Physical sciences	11.4	11.2	11.1	11.0	10.9	10.7	10.4	10.2	9.8	9.7	9.6	9.5	9.0	8.6	8.3	8.2
Astronomy.....	0.8	1.0	1.0	1.2	1.3	1.3	1.3	1.4	1.2	1.2	1.2	1.4	1.3	1.2	1.1	1.0
Chemistry	3.9	4.0	4.0	3.8	3.7	3.7	3.6	3.5	3.5	3.4	3.4	3.3	3.2	3.1	3.1	3.0
Physics.....	5.8	5.3	5.2	5.0	4.9	4.7	4.6	4.5	4.3	4.3	4.2	4.2	4.0	3.8	3.5	3.5
Other.....	0.8	0.9	0.9	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.9	0.6	0.5	0.5	0.5	0.6
Mathematics	1.3	1.3	1.4	1.3	1.3	1.4	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.1
Computer sciences.....	1.2	2.0	3.2	3.2	3.0	3.0	3.1	3.1	3.0	2.9	2.9	3.1	2.9	2.9	3.1	3.3
Earth, atmospheric, and ocean sciences.....	7.3	8.4	6.6	6.4	6.6	6.6	6.6	6.5	6.5	6.3	6.3	6.1	5.9	5.6	5.6	5.5
Atmospheric sciences	NA	1.3	1.1	1.0	1.0	1.1	1.0	0.9	1.0	1.0	1.0	1.0	1.0	0.9	0.9	1.0
Earth sciences.....	NA	3.1	2.2	2.2	2.2	2.1	2.2	2.1	1.9	1.8	2.0	1.9	1.9	1.7	1.8	1.8
Ocean sciences.....	NA	2.9	2.3	2.2	2.3	2.3	2.2	2.1	2.3	2.2	2.1	2.2	2.1	2.1	2.0	1.9
Other.....	7.3	1.1	1.0	1.0	1.1	1.2	1.3	1.3	1.2	1.2	1.1	0.9	0.9	0.9	0.9	0.7

Appendix table 5-5
Expenditures for academic R&D, by field: Selected years, 1973–2003

Field	1973	1980	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	Percent distribution															
Life sciences	53.0	53.1	53.6	53.9	54.2	54.4	54.5	55.0	55.2	55.8	56.5	56.8	58.1	58.6	58.9	59.3
Agricultural sciences	9.6	11.1	8.3	8.3	8.0	7.8	7.9	8.2	8.3	8.1	7.7	7.4	7.2	7.1	6.7	6.4
Biological sciences.....	19.3	17.0	17.6	17.4	17.6	17.7	17.6	17.3	17.0	17.2	17.7	18.3	18.7	18.1	18.1	18.4
Medical sciences.....	22.4	23.5	25.5	25.9	26.4	26.7	26.8	27.4	27.7	28.3	28.9	29.1	29.9	31.1	31.6	31.9
Other.....	1.8	1.5	2.2	2.3	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.0	2.3	2.3	2.4	2.6
Psychology.....	2.6	1.8	1.6	1.6	1.7	1.8	1.7	1.7	1.7	1.6	1.7	1.7	1.7	1.8	1.8	1.9
Social sciences.....	8.0	5.6	4.3	4.3	4.3	4.5	4.5	4.6	4.8	4.6	4.4	4.5	4.3	4.4	4.4	4.1
Economics	1.7	1.5	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.1	1.0	1.0	0.8	0.8	0.8	0.8
Political science	0.9	0.9	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.8	0.7	0.7
Sociology	2.1	1.4	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	0.9
Other.....	3.3	1.8	1.6	1.5	1.5	1.7	1.7	1.7	1.8	1.8	1.7	1.9	1.7	1.8	1.8	1.7
Other sciences	3.7	2.4	2.1	1.9	1.7	1.8	1.9	1.9	1.8	2.1	1.7	1.6	1.8	1.8	1.7	1.7
Engineering	11.6	14.2	16.3	16.5	16.3	15.8	16.0	15.9	16.1	15.8	15.7	15.5	15.1	15.3	15.2	15.0
Aeronautical/astronautical.....	NA	0.9	1.0	1.0	1.0	1.1	1.0	1.1	1.0	1.0	1.0	0.9	0.9	1.0	0.9	1.0
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3	0.4	0.5	0.6	0.6	0.8	0.8
Chemical.....	NA	1.0	1.3	1.4	1.4	1.4	1.3	1.3	1.4	1.3	1.3	1.3	1.2	1.3	1.2	1.1
Civil.....	NA	1.4	1.7	1.8	1.8	1.9	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	1.9
Electrical/electronic.....	NA	3.0	4.1	3.9	3.7	3.5	3.5	3.7	3.9	3.9	4.0	3.7	3.7	3.5	3.6	3.5
Mechanical.....	NA	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.1	2.2	2.3	2.1	2.1	2.1	2.1
Materials	NA	NA	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.6	1.5	1.4	1.3	1.4	1.3	1.3
Other.....	11.6	5.6	4.1	4.3	4.3	4.1	4.3	4.0	4.1	3.6	3.5	3.5	3.3	3.3	3.3	3.2

NA = not available

NOTES: Detail may not add to total because of rounding. See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2000 dollars.

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Appendix table 5-6

(Page 1 of 3)

Federal obligations for academic R&D, by agency: 1970–2005

Year	All agencies	Department of Agriculture	Department of Defense	Department of Energy ^a	National	National	National	All other agencies
					Aeronautics and Space Administration	Institutes of Health ^b	Science Foundation	
Millions of current dollars								
1970.....	1,476	65	216	100	131	518	228	217
1971.....	1,645	72	211	94	134	603	267	264
1972.....	1,904	87	217	85	119	756	362	277
1973.....	1,917	94	204	83	111	761	374	289
1974.....	2,214	95	197	94	99	1,027	389	312
1975.....	2,411	108	203	132	108	1,077	435	348
1976.....	2,552	120	240	145	119	1,185	437	307
1977.....	2,905	140	273	188	118	1,311	511	364
1978.....	3,375	186	383	240	127	1,493	537	408
1979.....	3,889	200	438	260	139	1,880	617	355
1980.....	4,263	216	495	285	158	2,012	685	412
1981.....	4,466	243	573	300	171	2,101	702	376
1982.....	4,605	255	664	277	186	2,140	715	369
1983.....	4,966	275	724	297	189	2,392	783	306
1984.....	5,547	261	830	321	204	2,715	880	335
1985.....	6,340	293	940	357	237	3,158	1,002	352
1986.....	6,559	274	1,098	345	254	3,243	992	355
1987.....	7,337	280	1,017	386	294	3,903	1,096	361
1988.....	7,828	305	1,071	406	338	4,199	1,143	366
1989.....	8,672	328	1,189	454	434	4,565	1,254	449
1990.....	9,138	348	1,213	500	471	4,779	1,321	505
1991.....	10,169	386	1,152	621	534	5,521	1,436	520
1992.....	10,271	438	1,403	640	586	5,064	1,540	600
1993.....	11,208	433	1,616	583	614	5,848	1,562	553
1994.....	11,797	439	1,703	565	641	6,191	1,680	577
1995.....	11,928	435	1,589	594	708	6,271	1,734	597
1996.....	11,978	376	1,447	601	665	6,620	1,740	529
1997.....	12,559	441	1,345	583	719	7,057	1,819	595
1998.....	13,381	415	1,419	623	787	7,565	1,875	697
1999.....	14,959	492	1,474	630	787	8,762	2,076	739
2000.....	16,821	554	1,606	668	845	10,087	2,265	796
2001.....	19,588	652	2,285	743	942	11,528	2,498	939
2002.....	21,290	592	2,219	762	1,075	13,062	2,696	885
2003.....	22,687	634	1,934	790	1,096	14,350	2,978	904
2004 (estimated).....	23,954	722	1,913	805	1,116	15,404	3,081	913
2005 (estimated).....	23,894	592	1,575	751	1,096	15,781	3,175	923
Millions of constant 2000 dollars								
1970.....	5,462	241	799	370	485	1,917	844	803
1971.....	5,798	254	744	331	472	2,125	941	931
1972.....	6,409	293	730	286	401	2,545	1,218	932
1973.....	6,180	303	658	268	358	2,453	1,206	932
1974.....	6,657	286	592	283	298	3,088	1,170	938
1975.....	6,566	294	553	359	294	2,933	1,185	948
1976.....	6,483	305	610	368	302	3,010	1,110	780
1977.....	6,865	331	645	444	279	3,098	1,208	860
1978.....	7,473	412	848	531	281	3,306	1,189	903
1979.....	7,969	410	897	533	285	3,852	1,264	727
1980.....	8,031	407	933	537	298	3,790	1,290	776
1981.....	7,663	417	983	515	293	3,605	1,205	645
1982.....	7,395	410	1,066	445	299	3,437	1,148	593
1983.....	7,638	423	1,114	457	291	3,679	1,204	471
1984.....	8,228	387	1,231	476	303	4,027	1,305	497

Appendix table 5-6

(Page 2 of 3)

Federal obligations for academic R&D, by agency: 1970–2005

Year	All agencies	Department of Agriculture	Department of Defense	Department of Energy ^a	National	National	National	All other agencies
					Aeronautics and Space Administration	Institutes of Health ^b	Science Foundation	
Millions of constant 2000 dollars								
1985.....	9,108	421	1,350	513	340	4,537	1,440	506
1986.....	9,209	385	1,542	484	357	4,553	1,393	498
1987.....	10,039	383	1,392	528	402	5,340	1,500	494
1988.....	10,384	405	1,421	539	448	5,570	1,516	486
1989.....	11,073	419	1,518	580	554	5,829	1,601	573
1990.....	11,250	428	1,493	616	580	5,884	1,626	622
1991.....	12,067	458	1,367	737	634	6,551	1,704	617
1992.....	11,889	507	1,624	741	678	5,862	1,783	695
1993.....	12,691	490	1,830	660	695	6,622	1,769	626
1994.....	13,074	487	1,887	626	710	6,861	1,862	639
1995.....	12,941	472	1,724	644	768	6,804	1,881	648
1996.....	12,757	400	1,541	640	708	7,051	1,853	563
1997.....	13,146	462	1,408	610	753	7,387	1,904	623
1998.....	13,832	429	1,467	644	814	7,820	1,938	720
1999.....	15,263	502	1,504	643	803	8,940	2,118	754
2000.....	16,821	554	1,606	668	845	10,087	2,265	796
2001.....	19,147	637	2,234	726	921	11,268	2,442	918
2002.....	20,419	568	2,128	731	1,031	12,527	2,586	849
2003.....	21,376	597	1,822	744	1,033	13,521	2,806	852
2004 (estimated).....	22,144	667	1,768	744	1,032	14,240	2,848	844
2005 (estimated).....	21,644	536	1,427	680	993	14,295	2,876	836
Percent distribution								
1970.....	100.0	4.4	14.6	6.8	8.9	35.1	15.4	14.7
1971.....	100.0	4.4	12.8	5.7	8.1	36.7	16.2	16.0
1972.....	100.0	4.6	11.4	4.5	6.3	39.7	19.0	14.5
1973.....	100.0	4.9	10.6	4.3	5.8	39.7	19.5	15.1
1974.....	100.0	4.3	8.9	4.2	4.5	46.4	17.6	14.1
1975.....	100.0	4.5	8.4	5.5	4.5	44.7	18.0	14.4
1976.....	100.0	4.7	9.4	5.7	4.7	46.4	17.1	12.0
1977.....	100.0	4.8	9.4	6.5	4.1	45.1	17.6	12.5
1978.....	100.0	5.5	11.3	7.1	3.8	44.2	15.9	12.1
1979.....	100.0	5.1	11.3	6.7	3.6	48.3	15.9	9.1
1980.....	100.0	5.1	11.6	6.7	3.7	47.2	16.1	9.7
1981.....	100.0	5.4	12.8	6.7	3.8	47.0	15.7	8.4
1982.....	100.0	5.5	14.4	6.0	4.0	46.5	15.5	8.0
1983.....	100.0	5.5	14.6	6.0	3.8	48.2	15.8	6.2
1984.....	100.0	4.7	15.0	5.8	3.7	48.9	15.9	6.0
1985.....	100.0	4.6	14.8	5.6	3.7	49.8	15.8	5.6
1986.....	100.0	4.2	16.7	5.3	3.9	49.4	15.1	5.4
1987.....	100.0	3.8	13.9	5.3	4.0	53.2	14.9	4.9
1988.....	100.0	3.9	13.7	5.2	4.3	53.6	14.6	4.7
1989.....	100.0	3.8	13.7	5.2	5.0	52.6	14.5	5.2
1990.....	100.0	3.8	13.3	5.5	5.2	52.3	14.5	5.5
1991.....	100.0	3.8	11.3	6.1	5.3	54.3	14.1	5.1
1992.....	100.0	4.3	13.7	6.2	5.7	49.3	15.0	5.8
1993.....	100.0	3.9	14.4	5.2	5.5	52.2	13.9	4.9
1994.....	100.0	3.7	14.4	4.8	5.4	52.5	14.2	4.9
1995.....	100.0	3.6	13.3	5.0	5.9	52.6	14.5	5.0
1996.....	100.0	3.1	12.1	5.0	5.6	55.3	14.5	4.4
1997.....	100.0	3.5	10.7	4.6	5.7	56.2	14.5	4.7
1998.....	100.0	3.1	10.6	4.7	5.9	56.5	14.0	5.2
1999.....	100.0	3.3	9.9	4.2	5.3	58.6	13.9	4.9
2000.....	100.0	3.3	9.5	4.0	5.0	60.0	13.5	4.7

Appendix table 5-6

(Page 3 of 3)

Federal obligations for academic R&D, by agency: 1970–2005

Year	All agencies	Department of Agriculture	Department of Defense	Department of Energy ^a	National Aeronautics and Space Administration	National Institutes of Health ^b	National Science Foundation	All other agencies
					Percent distribution			
2001.....	100.0	3.3	11.7	3.8	4.8	58.9	12.8	4.8
2002.....	100.0	2.8	10.4	3.6	5.0	61.4	12.7	4.2
2003.....	100.0	2.8	8.5	3.5	4.8	63.3	13.1	4.0
2004 (estimated)	100.0	3.0	8.0	3.4	4.7	64.3	12.9	3.8
2005 (estimated)	100.0	2.5	6.6	3.1	4.6	66.0	13.3	3.9

^aData for 1970–73 for Atomic Energy Commission; data for 1974–76 for Energy Research and Development Administration; data for 1977 and thereafter for Department of Energy.

^bIncludes Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), an agency in the U.S. Department of Health and Human Services replaced in 1992 by the Substance Abuse and Mental Health Services Administration. Three research entities of ADAMHA (National Institute of Mental Health, National Institute on Alcohol Abuse and Alcoholism, and National Institute on Drug Abuse) were merged at that time into National Institutes of Health.

NOTES: Detail may not add to total because of rounding. See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2000 dollars.

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Federal Funds for Research and Development: Fiscal Years 2003, 2004, and 2005* (forthcoming); and *Federal Funds for Research and Development: Detailed Historical Tables: Fiscal Years 1951–2002*, NSF 03-325 (2003), <http://www.nsf.gov/statistics/nsf03325/start.htm>.

Appendix table 5-7

(Page 1 of 3)

Federal obligations for academic research, by agency: 1970–2005

Year	All agencies	Department of Agriculture	Department of Defense	Department of Energy ^a	National Aeronautics and Space Administration	National Institutes of Health ^b	National Science Foundation	All other agencies
1970.....	1,276	65	173	97	65	480	223	174
1971.....	1,430	72	184	90	70	551	254	210
1972.....	1,643	87	177	81	48	677	346	226
1973.....	1,691	94	161	79	80	749	370	158
1974.....	1,958	94	167	86	85	1,004	369	153
1975.....	2,079	108	165	112	91	1,036	420	148
1976.....	2,250	119	192	116	98	1,138	429	158
1977.....	2,584	139	221	134	105	1,269	505	211
1978.....	2,928	181	243	175	116	1,437	534	241
1979.....	3,333	198	271	204	125	1,657	612	266
1980.....	3,699	214	313	224	146	1,835	680	287
1981.....	3,920	240	363	248	157	1,929	698	284
1982.....	4,045	253	413	236	156	1,995	713	280
1983.....	4,468	273	472	273	170	2,246	783	250
1984.....	5,030	260	539	311	177	2,573	880	290
1985.....	5,726	292	587	336	213	2,990	1,002	305
1986.....	5,883	273	707	334	225	3,054	992	298
1987.....	6,640	279	681	372	263	3,651	1,096	298
1988.....	7,023	304	729	384	310	3,856	1,143	297
1989.....	7,793	326	840	437	387	4,167	1,254	382
1990.....	8,137	346	795	479	422	4,349	1,321	426
1991.....	8,868	384	794	596	474	4,729	1,436	456
1992.....	9,061	436	912	605	512	4,517	1,540	538
1993.....	9,892	429	1,090	547	539	5,253	1,562	472
1994.....	10,292	436	1,079	529	555	5,517	1,680	496
1995.....	10,354	431	1,047	558	588	5,481	1,734	516
1996.....	10,707	373	1,071	566	560	5,924	1,740	471
1997.....	11,173	437	945	552	596	6,309	1,819	515
1998.....	11,739	408	963	564	648	6,716	1,875	566
1999.....	13,204	482	989	562	745	7,733	2,076	617
2000.....	16,022	547	1,113	619	721	10,087	2,265	670
2001.....	18,657	643	1,697	695	812	11,528	2,498	785
2002.....	20,285	581	1,591	702	933	13,062	2,696	721
2003.....	21,676	627	1,302	729	937	14,350	2,978	754
2004 (estimated).....	22,865	714	1,211	748	957	15,404	3,081	751
2005 (estimated).....	22,995	587	1,046	703	937	15,781	3,175	766
	Millions of constant 2000 dollars							
1970.....	4,722	241	640	359	241	1,776	825	644
1971.....	5,040	254	649	317	247	1,942	895	740
1972.....	5,530	293	596	273	162	2,279	1,165	761
1973.....	5,451	303	519	255	258	2,415	1,193	509
1974.....	5,887	283	502	259	256	3,019	1,109	460
1975.....	5,662	294	449	305	248	2,822	1,144	403
1976.....	5,715	302	488	295	249	2,891	1,090	401
1977.....	6,106	328	522	317	248	2,999	1,193	499
1978.....	6,483	401	538	387	257	3,182	1,182	534
1979.....	6,829	406	555	418	256	3,395	1,254	545
1980.....	6,968	403	590	422	275	3,457	1,281	541
1981.....	6,726	412	623	426	269	3,310	1,198	487
1982.....	6,496	406	663	379	251	3,204	1,145	450
1983.....	6,872	420	726	420	261	3,454	1,204	385
1984.....	7,461	386	799	461	263	3,817	1,305	430

Appendix table 5-7

(Page 2 of 3)

Federal obligations for academic research, by agency: 1970–2005

Year	All agencies	Department of Agriculture	Department of Defense	Department of Energy ^a	National	National	National	All other agencies
					Aeronautics and Space Administration	Institutes of Health ^b	Science Foundation	
Millions of constant 2000 dollars								
1985.....	8,226	419	843	483	306	4,296	1,440	438
1986.....	8,260	383	993	469	316	4,288	1,393	418
1987.....	9,085	382	932	509	360	4,995	1,500	408
1988.....	9,316	403	967	509	411	5,115	1,516	394
1989.....	9,951	416	1,073	558	494	5,321	1,601	488
1990.....	10,018	426	979	590	520	5,354	1,626	524
1991.....	10,523	456	942	707	562	5,612	1,704	541
1992.....	10,489	505	1,056	700	593	5,229	1,783	623
1993.....	11,201	486	1,234	619	610	5,948	1,769	534
1994.....	11,406	483	1,196	586	615	6,114	1,862	550
1995.....	11,234	468	1,136	605	638	5,947	1,881	560
1996.....	11,403	397	1,141	603	596	6,309	1,853	502
1997.....	11,695	457	989	578	624	6,604	1,904	539
1998.....	12,134	422	995	583	670	6,942	1,938	585
1999.....	13,473	492	1,009	573	760	7,890	2,118	630
2000.....	16,022	547	1,113	619	721	10,087	2,265	670
2001.....	18,237	629	1,659	679	794	11,268	2,442	767
2002.....	19,455	557	1,526	673	895	12,527	2,586	691
2003.....	20,424	591	1,227	687	883	13,521	2,806	710
2004 (estimated).....	21,137	660	1,120	691	885	14,240	2,848	694
2005 (estimated).....	20,830	532	948	637	849	14,295	2,876	694
Percent distribution								
1970.....	100.0	5.1	13.6	7.6	5.1	37.6	17.5	13.6
1971.....	100.0	5.0	12.9	6.3	4.9	38.5	17.8	14.7
1972.....	100.0	5.3	10.8	4.9	2.9	41.2	21.1	13.8
1973.....	100.0	5.6	9.5	4.7	4.7	44.3	21.9	9.3
1974.....	100.0	4.8	8.5	4.4	4.3	51.3	18.8	7.8
1975.....	100.0	5.2	7.9	5.4	4.4	49.8	20.2	7.1
1976.....	100.0	5.3	8.5	5.2	4.4	50.6	19.1	7.0
1977.....	100.0	5.4	8.6	5.2	4.1	49.1	19.5	8.2
1978.....	100.0	6.2	8.3	6.0	4.0	49.1	18.2	8.2
1979.....	100.0	5.9	8.1	6.1	3.8	49.7	18.4	8.0
1980.....	100.0	5.8	8.5	6.1	3.9	49.6	18.4	7.8
1981.....	100.0	6.1	9.3	6.3	4.0	49.2	17.8	7.2
1982.....	100.0	6.3	10.2	5.8	3.9	49.3	17.6	6.9
1983.....	100.0	6.1	10.6	6.1	3.8	50.3	17.5	5.6
1984.....	100.0	5.2	10.7	6.2	3.5	51.2	17.5	5.8
1985.....	100.0	5.1	10.3	5.9	3.7	52.2	17.5	5.3
1986.....	100.0	4.6	12.0	5.7	3.8	51.9	16.9	5.1
1987.....	100.0	4.2	10.3	5.6	4.0	55.0	16.5	4.5
1988.....	100.0	4.3	10.4	5.5	4.4	54.9	16.3	4.2
1989.....	100.0	4.2	10.8	5.6	5.0	53.5	16.1	4.9
1990.....	100.0	4.3	9.8	5.9	5.2	53.4	16.2	5.2
1991.....	100.0	4.3	9.0	6.7	5.3	53.3	16.2	5.1
1992.....	100.0	4.8	10.1	6.7	5.7	49.9	17.0	5.9
1993.....	100.0	4.3	11.0	5.5	5.4	53.1	15.8	4.8
1994.....	100.0	4.2	10.5	5.1	5.4	53.6	16.3	4.8
1995.....	100.0	4.2	10.1	5.4	5.7	52.9	16.7	5.0
1996.....	100.0	3.5	10.0	5.3	5.2	55.3	16.3	4.4
1997.....	100.0	3.9	8.5	4.9	5.3	56.5	16.3	4.6
1998.....	100.0	3.5	8.2	4.8	5.5	57.2	16.0	4.8
1999.....	100.0	3.7	7.5	4.3	5.6	58.6	15.7	4.7
2000.....	100.0	3.4	6.9	3.9	4.5	63.0	14.1	4.2

Appendix table 5-7

(Page 3 of 3)

Federal obligations for academic research, by agency: 1970–2005

Year	All agencies	Department of Agriculture	Department of Defense	Department of Energy ^a	National Aeronautics and Space Administration	National Institutes of Health ^b	National Science Foundation	All other agencies
					Percent distribution	Percent distribution	Percent distribution	
2001.....	100.0	3.4	9.1	3.7	4.4	61.8	13.4	4.2
2002.....	100.0	2.9	7.8	3.5	4.6	64.4	13.3	3.6
2003.....	100.0	2.9	6.0	3.4	4.3	66.2	13.7	3.5
2004 (estimated)	100.0	3.1	5.3	3.3	4.2	67.4	13.5	3.3
2005 (estimated)	100.0	2.6	4.5	3.1	4.1	68.6	13.8	3.3

^aData for 1970–73 for Atomic Energy Commission; data for 1974–76 for Energy Research and Development Administration; data for 1977 and thereafter for U.S. Department of Energy.

^bIncludes Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), an agency in the U.S. Department of Health and Human Services replaced in 1992 by the Substance Abuse and Mental Health Services Administration. Three research entities of ADAMHA (National Institute of Mental Health, National Institute on Alcohol Abuse and Alcoholism, and National Institute on Drug Abuse) were merged at that time into National Institutes of Health.

NOTES: Academic research includes basic and applied research. Detail may not add to total because of rounding. See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2000 dollars.

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Federal Funds for Research and Development: Fiscal Years 2003, 2004, and 2005* (forthcoming); and *Federal Funds for Research and Development: Detailed Historical Tables: Fiscal Years 1951–2002*, NSF 03-325 (2003), <http://www.nsf.gov/statistics/nsf03325/start.htm>.

Science and Engineering Indicators 2006

Appendix table 5-8
Federal agencies' academic research obligations, by field: FY 2003
 (Percent distribution)

Field	Department of Agriculture	Department of Defense	Department of Energy	Department of Health and Human Services	National Aeronautics and Space Administration	National Science Foundation
All fields.....	100.0	100.0	100.0	100.0	100.0	100.0
Science	97.0	57.0	89.1	99.0	81.4	82.3
Physical sciences	3.4	10.8	58.6	1.9	39.8	19.0
Astronomy.....	0.0	0.0	0.0	0.0	27.9	2.4
Chemistry	3.4	3.8	10.6	1.6	1.9	5.7
Physics	0.0	5.3	40.2	0.0	5.9	7.2
Other.....	0.0	1.7	7.8	0.2	4.1	3.6
Mathematics	0.2	2.3	1.9	0.2	0.1	5.5
Computer sciences.....	0.0	18.1	1.4	0.0	3.7	18.2
Earth, atmospheric, and ocean sciences.....	1.1	8.1	11.8	1.7	13.3	14.9
Atmospheric sciences	1.1	1.0	3.7	0.0	5.3	3.3
Earth sciences.....	0.0	0.4	4.7	0.0	0.9	4.2
Oceanography.....	0.0	6.3	0.4	0.0	1.1	6.7
Other.....	0.0	0.3	3.0	1.7	6.1	0.7
Life sciences	82.6	15.8	15.5	88.7	5.9	16.3
Agricultural sciences	44.0	0.1	0.0	0.0	0.1	0.0
Biological sciences (excluding environmental)	19.7	8.1	7.8	66.6	3	13.2
Environmental biology	17.7	0.3	0.0	0.0	0.2	3.1
Medical sciences.....	1.1	4.8	7.7	18.9	1.4	0.0
Other.....	0.0	2.4	0.0	3.2	1.3	0.0
Psychology	0.0	1.2	0.0	3.5	0.3	0.1
Biological aspects	0.0	0.9	0.0	0.0	0	0.0
Social aspects.....	0.0	0.1	0.0	0.0	0	0.1
Other.....	0.0	0.2	0.0	3.5	0.2	0.0
Social sciences.....	9.3	0.0	0.0	1.0	0	3.6
Anthropology.....	0.0	0.0	0.0	0.0	0	0.3
Economics	7.1	0.0	0.0	0.0	0	0.6
Political science	0.0	0.0	0.0	0.0	0	0.2
Sociology	2.2	0.0	0.0	0.0	0	0.2
Other.....	0.0	0.0	0.0	1.0	0	2.3
Other sciences	0.4	0.7	0.0	2.0	18.3	4.8
Engineering	3.0	43.0	10.9	1.0	18.6	17.7
Aeronautical	0.0	2.2	0.0	0.0	5.8	0.0
Astronautical	0.0	0.5	0.0	0.0	1.9	0.0
Chemical.....	0.1	0.8	2.8	0.0	0.3	2.2
Civil.....	0.0	0.3	0.8	0.0	0	1.7
Electrical	0.0	13.0	0.5	0.0	1.5	2.3
Mechanical.....	0.0	4.6	1.2	0.0	0.8	0.3
Materials	0.0	8.9	2.1	0.0	1.1	4.4
Other.....	2.9	12.6	3.5	1.0	7.1	6.8

NOTES: Academic research includes both basic and applied research. Agencies shown are only ones that report research obligations to academia by S&E field; they represent approximately 97% of academic research obligations. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, *Federal Funds for Research and Development: Fiscal Years 2003, 2004, and 2005* (forthcoming).

Appendix table 5-9
Federal academic research obligations provided by major agencies, by field: FY 2003
 (Percent distribution)

Field	All agencies	Department of Agriculture	Department of Defense	Department of Energy	Department of Health and Human Services	National Aeronautics and Space Administration	National Science Foundation
All fields	100.0	3.0	6.2	3.5	68.9	4.4	14.1
Science	100.0	3.1	3.8	3.3	73.4	3.9	12.5
Physical sciences	100.0	1.2	7.9	23.8	15.0	20.7	31.4
Astronomy.....	100.0	0.0	0.0	0.0	0.0	78.2	21.8
Chemistry	100.0	3.7	8.7	13.5	41.1	3.1	29.9
Physics	100.0	0.0	11.0	46.3	0.0	8.7	34.0
Other.....	100.0	0.0	8.6	21.9	13.7	15.0	40.8
Mathematics	100.0	0.4	12.9	5.8	10.3	0.3	69.0
Computer sciences.....	100.0	0.0	28.8	1.2	0.2	4.2	66.0
Earth, atmospheric, and ocean sciences.....	100.0	0.7	10.4	8.4	24.8	12.3	43.4
Atmospheric sciences	100.0	3.6	6.9	13.6	0.0	25.2	50.6
Earth sciences.....	100.0	0.0	3.2	20.0	0.2	4.7	71.8
Ocean sciences.....	100.0	0.0	27.9	1.0	0.0	3.4	67.7
Other.....	100.0	0.0	1.3	6.1	70.8	16.1	5.8
Life sciences	100.0	3.6	1.4	0.8	90.4	0.4	3.4
Agricultural sciences	100.0	99.2	0.5	0.0	0.0	0.4	0.0
Biological sciences (excluding environmental)	100.0	1.2	1.0	0.5	93.2	0.3	3.8
Environmental biology	100.0	53.1	2.0	0.0	0.0	0.7	44.2
Medical sciences.....	100.0	0.2	2.2	1.9	95.2	0.4	0.0
Other.....	100.0	0.0	6.0	0.0	91.6	2.4	0.0
Psychology	100.0	0.0	2.9	0.0	95.9	0.5	0.7
Biological aspects	100.0	0.0	98.3	0.0	0.0	1.7	0.0
Social aspects.....	100.0	0.0	23.7	0.0	1.6	4.6	70.0
Other.....	100.0	0.0	0.6	0.0	99.0	0.4	0.0
Social sciences.....	100.0	18.8	0.0	0.0	46.3	0.1	34.7
Anthropology.....	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Economics	100.0	70.6	0.0	0.0	3.2	0.0	26.2
Political science	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Sociology	100.0	73.5	0.0	0.0	1.7	0.3	24.5
Other.....	100.0	0.0	0.0	0.0	66.7	0.2	33.1
Other sciences	100.0	0.4	1.4	0.0	46.7	28.0	23.5
Engineering	100.0	1.3	37.1	5.3	9.8	11.5	35.0
Aeronautical	100.0	0.0	34.8	0.0	0.0	65.2	0.0
Astronautical	100.0	0.0	27.2	0.0	0.0	72.8	0.0
Chemical	100.0	0.4	10.4	20.5	0.0	2.8	65.9
Civil.....	100.0	0.2	7.2	9.5	0.0	0.4	82.7
Electrical	100.0	0.0	66.1	1.5	0.0	5.4	27.0
Mechanical.....	100.0	0.1	69.8	10.5	0.0	9.3	10.3
Materials.....	100.0	0.0	42.4	5.5	0.0	3.9	48.2
Other.....	100.0	2.9	26.3	4.1	23.6	10.6	32.5

NOTES: Academic research includes both basic and applied research. Agencies shown are only ones that report research obligations to academia by S&E field; they represent approximately 97% of academic research obligations.

SOURCE: National Science Foundation, Division of Science Resources Statistics, *Federal Funds for Research and Development: Fiscal Years 2003, 2004, and 2005* (forthcoming).

Appendix table 5-10

Sources of R&D funds at private and public institutions: 1983, 1993, and 2003

Source of funds	All institutions		Private institutions		Public institutions	
	Current \$ millions	Percent distribution	Current \$ millions	Percent distribution	Current \$ millions	Percent distribution
1983						
All sources.....	7,882	100.0	2,770	100.0	5,111	100.0
Federal government.....	4,989	63.3	2,121	76.6	2,869	56.1
State/local government.....	626	7.9	53	1.9	573	11.2
Industry.....	389	4.9	145	5.2	244	4.8
Academic institutions.....	1,302	16.5	233	8.4	1,069	20.9
Other.....	576	7.3	219	7.9	358	7.0
1993						
All sources.....	19,951	100.0	6,575	100.0	13,376	100.0
Federal government.....	11,957	59.9	4,785	72.8	7,171	53.6
State/local government.....	1,559	7.8	142	2.2	1,416	10.6
Industry.....	1,360	6.8	466	7.1	895	6.7
Academic institutions.....	3,589	18.0	607	9.2	2,982	22.3
Other.....	1,486	7.4	574	8.7	912	6.8
2003						
All sources.....	40,077	100.0	12,722	100.0	27,355	100.0
Federal government.....	24,734	61.7	9,439	74.2	15,295	55.9
State/local government.....	2,653	6.6	289	2.3	2,364	8.6
Industry.....	2,162	5.4	703	5.5	1,459	5.3
Academic institutions.....	7,683	19.2	1,281	10.1	6,402	23.4
Other.....	2,845	7.1	1,010	7.9	1,834	6.7

NOTE: Detail may not add to total because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Appendix table 5-11

(Page 1 of 2)

Top 100 academic institutions in R&D expenditures, by source of funds: 2003

(Millions of current dollars)

Rank and academic institution	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
All institutions.....	40,077	24,734	2,653	2,162	7,683	2,845
1 University of California—Los Angeles (public).....	849	421	67	30	208	123
2 University of Michigan, all campuses (public).....	780	517	17	36	158	53
3 University of Wisconsin—Madison (public).....	721	396	41	16	199	69
4 University of Washington—Seattle (public).....	685	566	12	48	44	16
5 University of California—San Francisco (public).....	671	372	27	37	128	108
6 University of California—San Diego (public).....	647	400	24	29	123	71
7 Johns Hopkins University (private).....	637	525	3	18	41	51
8 Johns Hopkins University Applied Physics Laboratory ^a (private).....	607	582	1	2	18	4
9 Stanford University (private).....	603	484	4	31	42	42
10 University of Pennsylvania (private).....	565	416	2	27	43	77
Total, top 10.....	6,765	4,678	199	274	1,001	614
11 Cornell University, all campuses (private).....	555	321	62	26	104	43
12 Pennsylvania State University, all campuses (public).....	533	301	56	78	97	1
13 Duke University (private).....	520	307	15	122	46	31
14 Texas A&M University, all campuses (public).....	511	204	115	29	143	21
15 University of Minnesota, all campuses (public).....	509	293	59	24	70	61
16 University of California—Berkeley (public).....	507	238	35	22	142	70
17 Ohio State University, all campuses (public).....	496	198	12	46	188	52
18 University of Illinois at Urbana-Champaign (public).....	494	266	53	13	141	20
19 Massachusetts Institute of Technology (private).....	486	356	—	81	13	36
20 University of California—Davis (public).....	482	208	40	23	164	48
Total, top 20.....	11,859	7,371	645	737	2,108	996
21 Washington University (private).....	474	357	10	13	59	35
22 Baylor College of Medicine (private).....	462	303	3	18	62	77
23 University of Arizona (public).....	455	259	18	31	126	21
24 Columbia University in the City of New York (private).....	438	386	2	5	22	23
25 University of Colorado, all campuses (public).....	437	378	8	10	22	18
26 University of Florida (public).....	430	195	71	24	124	16
27 University of Southern California (private).....	414	300	11	25	77	0
28 University of Pittsburgh, all campuses (public).....	410	346	11	4	24	25
29 Harvard University (private).....	409	349	2	6	0	53
30 University of North Carolina at Chapel Hill (public).....	391	281	16	7	88	0
Total, top 30.....	16,177	10,524	796	881	2,712	1,264
31 Yale University (private).....	388	297	—	15	25	49
32 Georgia Institute of Technology, all campuses (public).....	364	204	8	33	116	4
33 University of Texas at Austin (public).....	344	232	21	32	43	16
34 Indiana University, all campuses (public).....	338	154	5	8	125	46
35 Emory University (private).....	323	228	8	6	33	48
36 University of Maryland at College Park (public).....	322	183	19	8	101	10
37 Michigan State University (public).....	321	134	57	11	107	13
38 Northwestern University (private).....	320	200	3	9	76	31
39 University of Texas M.D. Anderson Cancer Center (public).....	315	123	78	31	45	37
40 Louisiana State University, all campuses (public).....	315	99	88	16	88	23
Total, top 40.....	19,526	12,378	1,084	1,052	3,470	1,541
41 Purdue University, all campuses (public).....	309	129	44	35	101	—
42 University of Georgia (public).....	300	94	57	16	132	—
43 University of Maryland at Baltimore (public).....	297	126	28	65	41	37
44 University of Iowa (public).....	292	197	9	21	55	10
45 University of Illinois at Chicago (public).....	292	168	9	7	86	21
46 North Carolina State University at Raleigh (public).....	286	96	83	36	63	8
47 University of Rochester (private).....	286	208	12	25	28	13
48 University of Alabama at Birmingham (public).....	284	245	—	6	19	14
49 University of Texas Southwestern Medical Center Dallas (public).....	277	177	16	12	7	65
50 Vanderbilt University (private).....	276	222	—	5	37	12
Total, top 50.....	22,426	14,041	1,342	1,280	4,040	1,720
51 Rutgers the State University of New Jersey, all campuses (public).....	275	106	35	11	95	27
52 University of Kentucky, all campuses (public).....	272	120	42	7	85	18
53 University of Cincinnati, all campuses (public).....	255	185	5	5	46	13
54 Case Western Reserve University (private).....	251	205	6	5	15	19
55 Virginia Polytechnic Institute and State University (public).....	248	98	58	25	56	10

Appendix table 5-11

(Page 2 of 2)

Top 100 academic institutions in R&D expenditures, by source of funds: 2003

(Millions of current dollars)

Rank and academic institution	All sources	Federal government	State/local government	Industry	Academic institutions	All other sources
56 University of Chicago (private).....	247	201	7	3	16	20
57 New York University (private).....	242	166	6	8	29	33
58 California Institute of Technology (private).....	241	219	4	5	11	2
59 SUNY at Buffalo, all campuses (public).....	240	130	8	11	68	24
60 University of California–Irvine (public).....	235	134	11	11	49	29
Total, top 60.....	24,930	15,606	1,523	1,371	4,511	1,917
61 Boston University (private).....	225	204	—	8	0	12
62 University of Utah (public).....	224	152	3	5	37	27
63 University of Tennessee system (public).....	217	100	40	14	43	19
64 Mount Sinai School of Medicine (private).....	215	153	5	13	20	24
65 Wayne State University (public).....	214	103	17	14	65	15
66 University of South Florida (public).....	213	106	10	2	72	23
67 University of Virginia, all campuses (public).....	206	173	—	9	13	10
68 University of Missouri, Columbia (public).....	205	84	22	5	89	5
69 SUNY at Stony Brook, all campuses (public).....	200	112	5	5	65	14
70 Iowa State University (public).....	200	82	42	14	58	3
Total, top 70.....	27,049	16,877	1,666	1,459	4,973	2,069
71 Oregon Health Sciences University (public).....	197	164	4	9	7	14
72 Rockefeller University (private).....	192	75	8	3	76	30
73 University of Medicine and Dentistry of New Jersey (public).....	191	105	10	11	42	22
74 University of Connecticut, all campuses (public).....	190	112	7	12	44	16
75 Colorado State University (public).....	187	117	21	15	32	2
76 Carnegie Mellon University (private).....	186	158	4	13	6	6
77 University of Nebraska at Lincoln (public).....	185	59	5	7	109	4
78 Princeton University (private).....	180	104	5	8	49	13
79 University of Hawaii at Manoa (public).....	179	144	12	7	17	0
80 University of Miami (private).....	178	131	5	17	9	16
Total, top 80.....	28,914	18,046	1,747	1,562	5,364	2,191
81 Yeshiva University (private).....	177	129	0	0	48	0
82 Washington State University (public).....	175	71	7	4	83	11
83 University of Oklahoma, all campuses (public).....	174	75	14	11	59	15
84 University of Kansas, all campuses (public).....	173	91	6	3	62	11
85 Oregon State University (public).....	168	100	32	—	30	5
86 Mississippi State University (public).....	166	80	32	6	48	0
87 University of New Mexico, all campuses (public).....	158	107	3	2	41	5
88 Dartmouth College (private).....	156	106	3	5	29	13
89 University of Texas Medical Branch at Galveston (public).....	153	93	14	8	25	14
90 Clemson University (public).....	153	63	17	12	61	—
Total, top 90.....	30,568	18,960	1,877	1,613	5,850	2,264
91 Florida State University (public).....	152	88	10	1	48	5
92 Medical University of South Carolina (public).....	151	93	—	7	44	5
93 University of Texas Health Science Center Houston (public).....	149	107	3	12	12	15
94 University of California–Santa Barbara (public).....	149	88	3	14	27	18
95 University of Massachusetts at Worcester (public).....	149	109	27	4	0	8
96 Arizona State University (public).....	146	72	18	8	44	3
97 Utah State University (public).....	139	95	19	3	17	3
98 University of Texas Health Science Center San Antonio (public).....	133	87	6	8	22	11
99 Wake Forest University (private).....	130	108	—	13	2	7
100 University of Alaska Fairbanks, all campuses (public).....	129	73	3	23	30	0
Total, top 100.....	31,995	19,881	1,965	1,707	6,097	2,339

— = < \$1 million

*Not officially classified as federally funded research and development center but functions as one and performs almost as much R&D as Johns Hopkins University. Included as separate entry to provide better measure of distribution of academic R&D dollars and ranking of individual institutions.

NOTE: Public and private refer to institutional control.

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Appendix table 5-12

Academic institutions receiving federal R&D support, by selected Carnegie classification: 1972–2002

Year	All academic institutions	Carnegie institution type	
		Research/ doctorate granting	Other
1972.....	617	223	394
1973.....	534	219	315
1974.....	547	217	330
1975.....	558	221	337
1976.....	572	222	350
1977.....	617	220	397
1978.....	674	221	453
1979.....	663	223	440
1980.....	683	223	460
1981.....	619	225	394
1982.....	586	223	363
1983.....	600	226	374
1984.....	602	225	377
1985.....	646	226	420
1986.....	650	225	425
1987.....	764	228	536
1988.....	685	228	457
1989.....	716	229	487
1990.....	748	228	520
1991.....	777	227	550
1992.....	839	228	611
1993.....	891	227	664
1994.....	907	227	680
1995.....	901	228	673
1996.....	843	228	615
1997.....	844	228	616
1998.....	794	230	564
1999.....	791	228	563
2000.....	814	227	587
2001.....	842	227	615
2002.....	833	228	605

NOTE: Institutions designated by 1994 Carnegie classification code. For information on these institutional categories, see Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education*, Princeton University Press (1994), and chapter 2 sidebar, "Carnegie Classification of Academic Institutions."

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions: FY 2002*, NSF 05-309, (2005); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Current expenditures for research equipment at academic institutions, by field: Selected years, 1983–2003

Field	1983	1986	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	Millions of current dollars															
All fields.....	450	783	1,013	1,025	1,034	1,042	1,107	1,239	1,214	1,288	1,294	1,325	1,434	1,509	1,697	1,808
Science	371	637	793	791	809	824	857	967	929	988	996	1,040	1,128	1,177	1,334	1,425
Physical sciences	81	163	191	190	198	207	207	240	234	243	254	248	250	240	274	296
Astronomy.....	4	6	13	14	14	17	20	22	21	26	25	29	25	15	19	19
Chemistry	32	59	73	69	70	75	78	81	88	90	91	102	103	100	121	118
Physics	37	89	91	88	94	90	90	114	105	108	122	106	109	112	121	138
Other.....	8	9	14	18	20	26	19	22	19	19	16	11	12	13	12	20
Mathematics	4	7	10	11	10	15	15	14	13	15	14	12	10	12	10	7
Computer sciences.....	20	43	48	59	45	54	59	77	67	71	63	63	56	65	101	99
Earth, atmospheric, and ocean sciences.....	31	51	72	70	78	77	83	83	88	94	101	99	100	87	132	119
Atmospheric sciences	5	10	11	10	11	15	12	14	14	15	14	14	12	12	14	17
Earth sciences.....	12	18	27	29	30	27	30	27	31	35	38	35	37	29	33	42
Ocean sciences.....	11	18	20	19	28	24	27	28	29	31	33	37	34	34	74	50
Other.....	3	6	13	12	9	11	15	15	14	13	17	13	17	11	11	9
Life sciences	209	331	420	412	430	418	435	464	444	479	495	556	629	688	734	814
Agricultural sciences.....	41	58	54	53	59	53	68	63	63	69	76	72	77	82	71	74
Biological sciences.....	74	120	171	168	174	171	175	191	180	196	190	244	268	283	295	335
Medical sciences.....	87	138	177	169	176	178	173	187	183	198	213	221	263	302	339	372
Other.....	7	15	19	22	21	16	18	23	18	15	16	19	21	20	29	33
Psychology.....	7	9	11	11	11	15	13	12	12	13	13	12	14	14	19	23
Social sciences.....	9	14	15	14	18	19	21	27	25	24	22	18	19	17	17	18
Economics	2	4	4	5	5	5	6	7	6	5	4	4	3	2	2	3
Political science	1	1	1	2	2	3	3	3	3	3	3	2	2	2	2	2
Sociology	1	2	3	3	3	4	4	4	4	4	4	3	3	3	4	3
Other.....	5	7	7	5	7	8	9	12	11	11	11	9	11	9	9	9
Other sciences	10	20	25	25	18	18	23	51	45	49	33	32	51	54	47	49
Engineering	76	138	207	217	213	205	232	256	269	281	279	264	286	309	339	361
Aeronautical/astronautical	3	8	13	17	12	13	19	16	16	19	19	22	20	23	24	22
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	6	8	14	15	18	20
Chemical.....	6	14	18	20	20	22	19	22	24	23	28	27	26	31	30	32
Civil.....	7	12	20	18	16	18	19	22	26	28	21	23	29	32	43	30
Electrical/electronic.....	23	36	58	52	57	56	66	68	75	83	82	70	72	79	79	86
Mechanical.....	11	19	32	34	31	35	37	42	43	46	51	51	54	48	54	55
Materials.....	NA	NA	27	33	29	23	25	28	32	36	29	28	30	49	41	60
Other.....	29	58	51	59	61	51	66	73	69	62	60	57	61	55	74	78
	Millions of constant 2000 dollars															
All fields.....	693	1,099	1,247	1,217	1,197	1,180	1,227	1,344	1,293	1,349	1,337	1,352	1,434	1,475	1,628	1,703
Science	571	894	976	939	937	933	950	1,049	989	1,034	1,029	1,061	1,128	1,150	1,279	1,342
Physical sciences	124	229	235	225	230	235	230	260	249	255	262	253	250	235	263	279
Astronomy.....	6	8	16	17	16	19	22	24	23	28	26	29	25	14	18	18
Chemistry	50	83	90	82	81	85	87	88	94	94	94	104	103	98	116	112
Physics	56	126	112	104	109	101	99	124	112	113	126	108	109	110	116	130
Other.....	12	13	17	21	23	29	22	23	21	20	16	12	12	12	12	19

Current expenditures for research equipment at academic institutions, by field: Selected years, 1983–2003

Field	1983	1986	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	Millions of constant 2000 dollars															
Mathematics	6	10	13	13	12	17	17	16	14	16	15	12	10	11	10	7
Computer sciences.....	31	60	59	69	52	61	65	83	72	75	66	64	56	63	97	93
Earth, atmospheric, and ocean sciences.....	48	72	89	83	90	87	92	90	94	98	105	101	100	85	126	112
Atmospheric sciences	8	14	14	12	13	16	13	15	14	16	15	15	12	12	14	16
Earth sciences.....	18	25	34	34	35	31	33	29	33	37	39	35	37	29	31	39
Ocean sciences.....	17	25	25	23	32	27	30	30	31	32	34	38	34	34	71	47
Other.....	5	8	16	14	10	13	16	16	15	13	17	14	17	11	10	9
Life sciences.....	322	464	517	489	498	474	482	503	473	501	512	567	629	672	704	767
Agricultural sciences.....	63	81	66	63	68	60	75	69	67	73	78	74	77	80	68	70
Biological sciences.....	113	168	210	199	202	194	194	208	192	205	197	249	268	276	283	316
Medical sciences.....	134	194	218	201	203	201	192	203	195	207	220	225	263	296	325	351
Other.....	11	21	23	26	24	18	20	24	20	16	16	19	21	20	28	31
Psychology.....	10	12	13	13	13	17	14	13	13	14	14	12	14	14	18	22
Social sciences.....	15	20	18	17	21	21	24	29	27	25	23	18	19	16	16	17
Economics	3	5	5	5	6	5	6	8	7	6	4	4	3	2	2	3
Political science	1	2	2	2	3	3	3	3	4	3	3	2	2	2	2	2
Sociology	2	3	4	3	4	4	4	5	5	5	4	3	3	3	4	3
Other.....	8	10	8	6	8	9	10	13	12	12	11	9	11	9	9	9
Other sciences	16	28	31	30	21	20	26	55	48	51	34	33	51	53	45	46
Engineering	117	194	255	257	247	232	257	277	286	295	288	269	286	302	325	340
Aeronautical/astronautical.....	5	11	16	21	14	15	21	18	17	20	20	22	20	23	23	21
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	6	8	14	15	17	19
Chemical.....	9	20	22	24	23	24	21	24	26	25	29	28	26	30	29	30
Civil.....	11	16	25	21	18	21	21	24	27	29	22	24	29	31	41	28
Electrical/electronic.....	35	51	72	62	66	63	73	74	80	87	85	71	72	77	76	81
Mechanical.....	17	27	40	41	36	39	42	45	45	48	53	52	54	47	52	52
Materials.....	NA	NA	33	39	33	27	28	30	34	38	30	29	30	48	39	57
Other.....	45	81	63	71	70	58	73	79	74	65	62	58	61	54	71	74
	Percent distribution															
All fields.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Science	82.3	81.4	78.3	77.2	78.2	79.1	77.4	78.0	76.5	76.7	77.0	78.5	78.7	78.0	78.6	78.8
Physical sciences	17.9	20.8	18.9	18.5	19.2	19.9	18.7	19.3	19.3	18.9	19.6	18.7	17.4	15.9	16.2	16.4
Astronomy.....	0.9	0.7	1.3	1.4	1.4	1.6	1.8	1.8	1.8	2.1	2.0	2.2	1.7	1.0	1.1	1.1
Chemistry	7.2	7.5	7.2	6.8	6.8	7.2	7.1	6.6	7.2	6.9	7.0	7.7	7.2	6.7	7.2	6.6
Physics.....	8.1	11.4	9.0	8.6	9.1	8.6	8.1	9.2	8.7	8.4	9.4	8.0	7.6	7.5	7.1	7.7
Other.....	1.7	1.1	1.4	1.8	1.9	2.5	1.8	1.7	1.6	1.5	1.2	0.9	0.9	0.8	0.7	1.1
Mathematics	0.8	0.9	1.0	1.0	1.0	1.5	1.3	1.2	1.1	1.2	1.1	0.9	0.7	0.8	0.6	0.4
Computer sciences.....	4.4	5.4	4.7	5.7	4.4	5.1	5.3	6.2	5.5	5.5	4.9	4.8	3.9	4.3	5.9	5.5
Earth, atmospheric, and ocean sciences.....	6.9	6.5	7.1	6.8	7.5	7.4	7.5	6.7	7.3	7.3	7.8	7.5	6.9	5.8	7.8	6.6
Atmospheric sciences	1.2	1.3	1.1	1.0	1.1	1.4	1.0	1.1	1.1	1.2	1.1	1.1	0.8	0.8	0.9	1.0
Earth sciences.....	2.6	2.3	2.7	2.8	2.9	2.6	2.7	2.2	2.6	2.7	2.9	2.6	2.6	2.0	1.9	2.3
Ocean sciences.....	2.5	2.3	2.0	1.9	2.7	2.3	2.5	2.2	2.4	2.4	2.5	2.8	2.3	2.3	4.3	2.8
Other.....	0.7	0.7	1.3	1.2	0.9	1.1	1.3	1.2	1.2	1.0	1.3	1.0	1.2	0.8	0.6	0.5

Current expenditures for research equipment at academic institutions, by field: Selected years, 1983–2003

Field	1983	1986	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	Percent distribution															
Life sciences	46.4	42.2	41.5	40.2	41.6	40.1	39.2	37.4	36.6	37.1	38.3	41.9	43.9	45.6	43.3	45.0
Agricultural sciences	9.1	7.4	5.3	5.2	5.7	5.1	6.1	5.1	5.2	5.4	5.9	5.4	5.3	5.4	4.2	4.1
Biological sciences	16.4	15.3	16.9	16.4	16.9	16.4	15.8	15.4	14.9	15.2	14.7	18.4	18.7	18.7	17.4	18.5
Medical sciences	19.4	17.7	17.5	16.5	17.0	17.1	15.7	15.1	15.1	15.4	16.4	16.7	18.3	20.0	20.0	20.6
Other	1.6	1.9	1.9	2.1	2.0	1.5	1.6	1.8	1.5	1.2	1.2	1.4	1.5	1.4	1.7	1.8
Psychology	1.4	1.1	1.1	1.1	1.1	1.5	1.1	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.1	1.3
Social sciences	2.1	1.8	1.5	1.4	1.7	1.8	1.9	2.1	2.1	1.9	1.7	1.3	1.3	1.1	1.0	1.0
Economics	0.5	0.5	0.4	0.4	0.5	0.4	0.5	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.2
Political science	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1
Sociology	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Other	1.1	0.9	0.7	0.5	0.7	0.8	0.8	1.0	0.9	0.9	0.8	0.6	0.8	0.6	0.5	0.5
Other sciences	2.3	2.6	2.5	2.5	1.8	1.7	2.1	4.1	3.7	3.8	2.5	2.4	3.5	3.6	2.8	2.7
Engineering	16.9	17.7	20.5	21.1	20.6	19.7	20.9	20.6	22.2	21.8	21.5	19.9	19.9	20.5	20.0	20.0
Aeronautical/astronautical	0.8	1.0	1.2	1.7	1.1	1.3	1.7	1.3	1.3	1.5	1.5	1.6	1.4	1.5	1.4	1.2
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3	0.5	0.6	0.9	1.0	1.1	1.1
Chemical	1.3	1.8	1.8	1.9	1.9	2.1	1.7	1.8	2.0	1.8	2.2	2.1	1.8	2.1	1.8	1.8
Civil	1.6	1.5	2.0	1.7	1.5	1.8	1.7	1.8	2.1	2.1	1.7	1.8	2.0	2.1	2.5	1.7
Electrical/electronic	5.0	4.6	5.8	5.1	5.5	5.4	5.9	5.5	6.2	6.4	6.4	5.3	5.0	5.2	4.7	4.7
Mechanical	2.5	2.4	3.2	3.3	3.0	3.3	3.4	3.4	3.5	3.6	3.9	3.8	3.8	3.2	3.2	3.1
Materials	NA	NA	2.7	3.2	2.8	2.2	2.3	2.3	2.6	2.8	2.2	2.1	2.1	3.3	2.4	3.3
Other	6.5	7.4	5.1	5.8	5.9	4.9	6.0	5.9	5.7	4.8	4.7	4.3	4.3	3.6	4.4	4.3

NA = not available

NOTES: Detail may not add to total because of rounding. See appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 2000 dollars.

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Appendix table 5-14

Federal share of current funding for research equipment at academic institutions, by field: Selected years, 1983–2003

(Percent)

Field	1983	1986	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All fields.....	62.3	64.0	59.9	59.6	59.8	61.2	60.6	59.3	59.5	58.6	59.8	58.2	56.3	55.5	59.1	63.4
Science	61.6	65.3	60.1	60.1	60.8	61.9	60.5	59.0	59.0	59.4	59.8	58.1	56.6	56.1	59.3	64.2
Physical sciences	78.8	80.1	75.3	73.5	76.4	74.1	72.8	74.6	73.0	70.8	73.9	74.8	70.0	66.9	70.2	73.3
Astronomy.....	84.0	70.1	63.1	61.6	68.9	65.6	63.8	61.5	70.7	65.1	81.6	86.5	83.4	83.1	80.6	74.6
Chemistry.....	71.7	73.1	71.4	68.1	71.9	70.4	68.4	70.1	68.7	65.4	67.0	67.3	61.4	57.7	62.1	65.4
Physics.....	83.4	85.8	81.1	79.0	80.8	75.8	79.0	81.7	77.1	76.2	76.4	79.7	76.8	71.9	76.4	78.7
Other.....	84.4	75.7	69.5	76.8	76.9	84.5	70.8	67.6	72.3	73.8	81.5	67.1	55.2	76.3	72.8	81.6
Mathematics.....	66.4	76.1	65.8	62.7	68.3	75.1	73.5	65.6	74.7	59.3	70.6	64.4	67.3	51.9	66.7	71.3
Computer sciences.....	72.7	82.5	65.8	74.6	65.7	69.9	68.9	63.5	70.8	68.9	70.4	69.0	60.4	64.1	73.7	83.3
Earth, atmospheric, and ocean sciences.....	61.7	68.2	65.9	61.4	67.4	70.8	72.9	69.9	70.0	73.1	67.8	67.4	63.9	61.3	61.5	72.7
Atmospheric sciences.....	71.3	81.3	76.8	75.8	78.2	78.1	81.6	71.5	64.1	74.6	81.2	79.0	79.3	74.4	76.3	80.9
Earth sciences.....	54.9	54.8	56.8	53.2	58.2	61.5	66.9	62.9	65.5	70.1	66.4	59.2	50.8	55.3	58.2	62.2
Ocean sciences.....	63.7	77.7	75.1	71.7	76.6	79.9	80.3	76.5	81.7	76.3	70.7	72.1	74.4	63.4	61.5	81.3
Other.....	63.5	57.4	61.4	52.4	56.0	64.5	64.8	68.6	61.2	72.3	53.8	63.0	60.8	56.8	51.6	57.5
Life sciences.....	54.9	57.0	53.2	53.6	53.8	54.3	52.5	48.6	50.2	50.2	50.9	49.9	52.7	52.6	55.6	60.1
Agricultural sciences.....	26.8	31.1	28.3	30.6	36.5	36.7	35.3	31.9	30.3	31.4	31.8	33.0	27.8	28.2	29.9	39.6
Biological sciences.....	66.0	66.9	60.2	60.5	61.1	60.8	61.0	56.0	58.8	55.7	56.5	57.0	60.2	58.7	59.7	64.0
Medical sciences.....	58.5	59.5	54.3	54.4	53.4	54.1	51.8	48.3	49.9	51.4	53.2	48.3	53.1	53.7	58.4	61.5
Other.....	58.2	54.8	50.6	50.8	44.3	45.6	41.5	34.6	36.6	48.8	43.5	41.3	44.0	49.4	45.6	51.0
Psychology.....	69.7	67.6	63.8	64.6	63.8	68.6	59.9	63.5	62.5	62.7	62.6	65.5	64.2	63.0	70.9	74.2
Social sciences.....	32.9	30.4	32.4	36.6	43.1	40.1	41.5	39.5	40.1	37.2	39.9	38.3	32.6	37.1	36.9	45.4
Economics.....	40.4	31.3	27.2	33.8	48.4	39.3	43.5	38.9	40.2	31.2	34.3	37.3	54.3	40.1	36.7	56.8
Political science.....	36.9	26.2	24.4	32.0	45.8	30.6	49.0	36.8	33.8	36.0	47.1	32.0	37.0	35.9	21.6	52.0
Sociology.....	59.6	42.1	43.2	52.6	52.2	52.9	46.0	46.7	48.3	43.3	47.4	42.2	44.6	35.2	43.0	50.7
Other.....	21.4	27.0	32.8	32.3	33.8	38.0	36.1	38.1	38.8	38.0	37.0	38.6	22.6	37.1	37.9	38.5
Other sciences.....	59.8	58.4	46.1	38.3	28.4	41.3	45.6	63.9	39.9	63.3	47.0	26.1	25.0	38.7	18.4	19.5
Engineering.....	64.8	57.6	57.6	55.8	55.3	57.3	59.3	59.3	60.5	55.0	59.0	57.5	54.6	52.1	57.0	59.0
Aeronautical/astronautical.....	76.7	74.1	81.1	83.8	75.1	81.3	76.9	77.4	71.3	70.2	69.0	70.6	63.6	71.2	78.9	83.4
Bioengineering/biomedical.....	NA	NA	NA	NA	NA	NA	NA	NA	NA	53.1	42.3	46.7	43.1	47.4	52.6	57.7
Chemical.....	58.1	58.8	46.1	49.0	50.5	46.7	58.0	58.8	56.7	55.0	55.6	49.2	52.3	51.7	55.2	55.6
Civil.....	51.5	50.8	58.7	46.7	44.9	44.5	44.6	44.2	44.3	43.7	43.2	49.2	35.2	39.1	59.2	60.4
Electrical/electronic.....	71.1	66.0	61.8	58.2	59.4	65.9	66.8	61.8	68.7	61.6	66.8	65.4	61.8	58.4	60.0	67.8
Mechanical.....	68.5	61.6	56.8	51.8	60.1	64.5	65.8	63.7	63.2	62.7	64.2	63.7	64.9	59.1	63.6	69.1
Materials.....	NA	NA	66.5	59.7	48.8	51.0	48.6	50.5	53.3	51.4	59.4	60.9	60.9	45.1	53.2	45.0
Other.....	63.2	52.0	52.2	59.0	56.4	55.1	56.8	62.7	60.6	47.8	52.6	49.4	46.3	52.1	51.9	54.0

NA = not available

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Appendix table 5-15

Expenditures of current funds for research equipment at academic institutions as percentage of total academic R&D expenditures, by field: Selected years, 1983–2003

Field	1983	1986	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All fields.....	5.7	7.2	6.2	5.8	5.5	5.2	5.3	5.6	5.3	5.3	5.0	4.8	4.8	4.6	4.7	4.5
Science	5.5	6.9	5.8	5.4	5.1	4.9	4.8	5.2	4.8	4.8	4.6	4.5	4.4	4.2	4.3	4.2
Physical sciences	9.0	12.7	10.6	9.8	9.6	9.7	9.5	10.6	10.4	10.3	10.2	9.5	9.2	8.6	9.1	9.1
Astronomy.....	5.7	5.7	7.8	6.8	5.9	6.5	7.5	7.4	7.7	9.2	8.4	7.5	6.4	3.9	4.8	4.9
Chemistry	9.7	12.5	11.3	10.3	10.0	10.1	10.3	10.5	11.0	10.9	10.4	11.1	10.7	10.0	10.7	9.7
Physics	8.8	14.2	10.8	10.0	10.2	9.5	9.4	11.6	10.6	10.2	11.3	9.2	9.1	9.1	9.4	9.7
Other.....	10.1	10.5	9.5	10.2	10.4	13.6	10.0	11.3	10.1	9.3	6.9	7.4	7.9	7.2	6.3	8.5
Mathematics	3.5	4.5	4.6	4.6	4.2	5.6	5.3	5.2	4.6	5.3	4.6	3.7	2.9	3.2	2.6	1.7
Computer sciences.....	10.7	13.3	9.3	10.6	8.1	8.8	9.1	11.2	9.7	10.1	8.5	7.3	6.4	6.8	9.0	7.6
Earth, atmospheric, and ocean sciences.....	5.0	6.6	6.8	6.3	6.3	5.9	6.0	5.8	5.9	6.1	6.2	5.9	5.6	4.8	6.5	5.4
Atmospheric sciences	5.3	8.3	6.6	5.9	5.7	6.9	5.7	6.6	6.0	6.1	5.4	5.0	4.2	4.1	4.2	4.4
Earth sciences.....	5.3	6.5	7.7	7.5	7.3	6.5	6.6	5.9	7.0	7.8	7.3	6.4	6.6	5.3	5.1	5.8
Ocean sciences.....	5.1	6.4	5.3	4.9	6.5	5.3	6.0	5.8	5.5	5.7	6.0	6.2	5.3	5.1	10.2	6.5
Other.....	3.8	5.6	8.1	7.0	4.4	4.9	5.2	5.0	4.9	4.2	5.7	5.2	5.9	3.8	3.4	3.1
Life sciences	4.9	5.6	4.8	4.4	4.2	3.9	3.8	3.8	3.5	3.5	3.4	3.6	3.6	3.6	3.4	3.4
Agricultural sciences.....	4.4	5.3	4.0	3.6	3.9	3.4	4.1	3.5	3.3	3.5	3.8	3.5	3.5	3.5	2.9	2.9
Biological sciences.....	5.2	6.2	6.0	5.5	5.3	4.8	4.7	5.0	4.6	4.7	4.2	4.8	4.8	4.8	4.5	4.5
Medical sciences.....	4.8	5.3	4.3	3.7	3.5	3.3	3.1	3.1	2.9	2.9	2.8	2.8	2.9	3.0	2.9	2.9
Other.....	5.4	6.1	5.2	5.4	5.0	3.6	3.9	4.8	3.6	2.9	2.9	3.4	3.1	2.7	3.3	3.2
Psychology.....	4.8	5.1	4.2	3.9	3.4	4.4	3.5	3.3	3.2	3.3	3.0	2.5	2.8	2.5	2.8	3.0
Social sciences.....	2.7	3.0	2.1	1.9	2.2	2.1	2.2	2.6	2.3	2.1	2.0	1.4	1.5	1.2	1.1	1.1
Economics	2.2	2.7	2.0	2.2	2.3	2.0	2.3	2.9	2.4	2.0	1.5	1.4	1.2	0.8	0.9	0.9
Political science	1.6	2.0	1.3	1.6	1.7	1.9	1.8	1.8	1.9	1.9	1.9	1.0	0.7	0.8	0.8	0.8
Sociology	1.8	2.3	2.2	1.7	2.1	2.0	1.9	1.9	1.9	1.7	1.6	1.2	1.1	0.9	1.0	0.9
Other.....	4.4	4.3	2.6	1.9	2.4	2.4	2.6	3.1	2.6	2.6	2.5	1.7	2.2	1.6	1.4	1.4
Other sciences	6.3	8.8	7.5	7.6	5.8	4.9	6.0	11.9	10.8	9.4	7.2	7.1	9.4	9.3	7.6	7.1
Engineering	6.8	8.4	7.8	7.5	7.0	6.5	6.9	7.3	7.3	7.3	6.8	6.2	6.3	6.2	6.1	6.0
Aeronautical/astronautical.....	5.0	8.0	7.7	9.7	5.9	6.2	8.7	6.8	6.9	7.8	7.8	8.3	7.8	6.9	7.0	5.5
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.8	6.1	5.6	7.8	7.1	6.4	6.4
Chemical.....	6.3	10.6	8.3	8.2	7.6	7.9	6.7	7.4	7.6	7.4	8.7	7.8	6.9	7.5	7.0	7.0
Civil.....	5.7	6.6	7.1	5.7	4.6	5.0	4.7	5.2	5.7	5.9	4.3	4.4	4.8	4.8	5.9	3.9
Electrical/electronic.....	8.6	9.1	8.8	7.7	8.1	8.0	8.8	8.3	8.5	8.8	7.9	6.9	6.4	6.8	6.1	6.1
Mechanical.....	7.5	8.3	8.3	8.1	6.9	7.2	7.5	8.0	8.2	8.9	9.0	8.1	8.6	7.0	6.9	6.7
Materials.....	NA	NA	9.9	10.9	9.7	7.8	8.0	8.5	9.1	9.3	7.4	7.4	7.5	10.9	8.7	11.2
Other.....	6.9	9.4	7.7	7.8	7.4	6.2	7.3	8.4	7.3	7.1	6.7	5.9	6.1	5.0	6.2	6.1

NA = not available

SOURCES: National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2003* (forthcoming); and Integrated Science and Engineering Resources Data System (WebCASPAR), <http://webcaspar.nsf.gov>.

Science and Engineering Indicators 2006

Appendix table 5-16

Costs for new construction of S&E research space in academic institutions, by field and expected time of construction: FY 2002–05

(Millions of dollars)

Field	Started in FY 2002–03	Planned to start in FY 2004–05	Deferred projects ^a
All fields.....	7,632.5	9,092.0	8,410.9
Physical sciences	791.5	906.1	1,052.2
Mathematics	10.5	40.8	170.5
Computer sciences.....	346.7	232.3	185.9
Earth, atmospheric, and ocean sciences	221.3	252.3	378.2
Agricultural sciences	142.2	353.0	267.8
Biological sciences.....	2,060.6	2,550.3	2,435.3
Medical sciences.....	2,339.5	2,960.5	2,361.1
Psychology	73.4	139.2	170.7
Social sciences.....	148.7	85.0	213.2
Other sciences.....	445.0	280.0	132.5
Engineering	1,053.0	1,292.4	1,043.4
Animal research space	739.8	579.1	226.1

^aDeferred construction projects are facilities needed for current research program commitments but not funded or scheduled for FY 2004 or 2005. Only those included in institutional plan included here.

NOTES: Animal research space listed separately and also included in individual field totals. Survey of Research and Development Expenditures at Universities and Colleges does not collect data separately on expenditures for research involving animals. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Science and Engineering Research Facilities, Fiscal Year 2003.

Science and Engineering Indicators 2006

Appendix table 5-17

New construction of S&E research space in academic institutions, by field and time of construction: FY 2002–05

(Millions of square feet)

Field	Construction started FY 2002–03		Construction planned to start FY 2004–05	
	Number of institutions	Total NASF	Number of institutions	Total NASF
All fields.....	216	16.1	190	19.1
Physical sciences	59	1.5	48	1.7
Mathematics	5	—	8	0.1
Computer sciences.....	27	1.0	21	0.8
Earth, atmospheric, and ocean sciences	30	0.6	27	0.7
Agricultural sciences	32	0.8	26	0.7
Biological sciences	107	4.0	88	4.6
Medical sciences.....	76	5.0	74	5.5
Psychology	19	0.2	10	0.3
Social sciences.....	11	0.2	17	0.3
Other sciences.....	23	0.7	17	0.8
Engineering	63	2.2	60	3.6
Animal research space	64	1.4	55	1.1

— = >0 but <50,000 NASF

NASF = net assignable square feet

NOTES: Animal research space listed separately and also included in individual field totals. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Science and Engineering Research Facilities, Fiscal Year 2003.

Appendix table 5-18

**Source of funds for construction of S&E research space in academic institutions, by year of project start and type of institution:
FY 1986–2003**

(Millions of current dollars)

Year of project start/type of institution	All sources	Federal government	State/local government	Institutional/other
1986 or 1987				
All institutions.....	2,050.6	145.4	779.1	1,125.4
Doctorate granting.....	1,887.7	129.9	690.4	1,066.7
Nondoctorate granting.....	162.9	15.5	88.7	58.8
1988 or 1989				
All institutions.....	2,464.5	352.0	890.7	1,219.9
Doctorate granting.....	2,315.0	339.0	807.3	1,166.9
Nondoctorate granting.....	149.5	13.0	83.4	53.1
1990 or 1991				
All institutions.....	2,975.6	476.3	956.6	1,542.7
Doctorate granting.....	2,847.2	465.5	947.9	1,433.8
Nondoctorate granting.....	128.4	10.8	8.7	108.9
1992 or 1993				
All institutions.....	2,811.9	459.3	968.6	1,384.1
Doctorate granting.....	2,719.6	452.3	893.2	1,374.2
Nondoctorate granting.....	92.2	7.0	75.4	9.9
1994 or 1995				
All institutions.....	2,767.5	206.4	1,180.9	1,380.2
Doctorate granting.....	2,436.9	201.3	890.3	1,345.3
Nondoctorate granting.....	330.5	5.2	290.5	34.9
1996 or 1997				
All institutions.....	3,110.3	270.9	966.6	1,873.0
Doctorate granting.....	2,843.2	268.3	880.6	1,694.4
Nondoctorate granting.....	267.1	2.5	86.0	178.6
1998 or 1999				
All institutions.....	2,765.4	237.8	939.0	1,588.6
Doctorate granting.....	2,562.5	206.0	869.1	1,487.5
Nondoctorate granting.....	202.9	31.8	70.0	101.0
2002 or 2003				
All institutions.....	7,632.5	359.7	2,457.8	4,815.0
Doctorate granting.....	7,375.0	326.7	2,371.6	4,676.7
Nondoctorate granting.....	257.4	32.9	86.3	138.2

NOTES: Institutional and other sources of funds include institution's operating funds, endowments, private donations, tax-exempt bonds and other debt financing, and indirect costs recovered from federal and nonfederal sources. No data for 2001 because question on construction costs not asked on FY 2001 survey. FY 2003 survey only reported construction projects costing >\$250,000; construction projects costing >\$100,000 were reported in previous cycles. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Science and Engineering Research Facilities, Fiscal Years 1986–2003.

Appendix table 5-19

Condition of S&E research space in academic institutions, by field: FY 2003

(Percent NASF)

Field	NASF (millions)	Superior	Satisfactory	Requires renovations	Requires replacement
All fields.....	164.6	30	49	16	5
Physical sciences	19.8	24	50	19	6
Mathematics	1.5	26	62	9	2
Computer sciences.....	3.0	41	47	8	4
Earth, atmospheric, and ocean sciences	8.7	25	52	17	7
Agricultural sciences	23.4	25	52	17	6
Biological sciences	34.6	32	45	18	5
Medical sciences.....	33.8	37	44	15	4
Psychology	4.3	30	50	16	4
Social sciences.....	5.5	24	54	16	7
Other sciences.....	3.7	25	57	14	4
Engineering	26.2	27	52	15	5
Animal research space	15.6	32	47	13	8

NASF = net assignable square feet

NOTES: NASF reported only for institutions that rated condition of space for current research program. Consequently, NASF reported in this table may vary slightly from NASF reported in other tables. Condition assessed relative to current research program. Animal research space listed separately and also included in individual field totals. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Science and Engineering Research Facilities, Fiscal Year 2003.

Appendix table 5-20

Highest desktop port speed and speed of the majority of desktop ports, by type of institution: FY 2003 and 2004

(Percent distribution)

Year and type of institution	Number of institutions	Highest desktop port speed				Speed of majority of desktop ports			
		≤10 mb	100 mb	1 gb	Other	≤10 mb	100 mb	1 gb	Other
FY 2003									
All academic	425	—	60	38	2	28	72	1	0
Doctorate granting.....	302	0	53	46	1	29	70	1	0
Nondoctorate granting	123	1	77	19	3	24	75	1	0
Control									
Public.....	280	0	58	40	3	29	71	—	0
Private.....	145	1	64	34	1	26	72	1	0
FY 2004 (estimated)									
All academic	419	—	46	52	2	16	81	2	0
Doctorate granting.....	299	0	37	61	2	17	81	2	0
Nondoctorate granting	120	1	67	30	3	15	83	3	0
Control									
Public.....	277	0	44	53	3	17	81	3	0
Private.....	142	1	49	50	1	15	82	2	0

— = >0% but <0.5%

mb = megabits/second; gb = gigabits/second

NOTES: One biomedical research institution reported having no desktop ports. Some institutions reported connection speeds in category "other." For purposes of comparison, table designates "other" as highest speed. Detail may not add to total because of rounding or absence of desktop ports.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Science and Engineering Research Facilities, Fiscal Year 2003.

Science and Engineering Indicators 2006

Appendix table 5-21

Commodity Internet (Internet 1) connection speeds, by type of institution: FY 2003 and 2004

(Percent distribution)

Type of institution	Number of connections	T1/DS1 (1.5 mb)	T3/DS3 (45 mb)	OC-3 (155 mb)	OC-12 (622 mb)	1 gb	OC-48 (2.4 gb)	Other
FY 2003								
All academic	1,130	49	22	15	3	6	—	5
Doctorate granting.....	864	48	20	17	3	8	—	5
Nondoctorate granting	266	53	29	11	1	1	—	4
FY 2004 (estimated)								
All academic	1,137	43	22	15	3	10	1	7
Doctorate granting.....	893	43	18	15	3	12	1	7
Nondoctorate granting	244	42	33	13	2	4	—	5

— = >0% but <0.5%

mb = megabits/second; gb = gigabits/second

NOTES: Some institutions reported connection speeds in category "other." Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Science and Engineering Research Facilities, Fiscal Year 2003.

S&E doctorate holders employed in research universities and other academic institutions, by type of position and primary work activity: 1973–2003

(Thousands)

Institution type, position, and primary work activity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All academic institutions																
All positions.....	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	258.3
Teaching.....	73.3	83.8	82.2	83.8	95.9	97.7	101.0	99.3	100.9	103.4	98.3	100.2	105.4	108.6	109.0	105.9
Research.....	27.8	30.8	37.0	41.3	46.5	48.9	55.9	66.5	72.2	73.9	80.2	83.0	88.6	91.4	93.8	102.9
Other work.....	16.9	19.4	26.2	30.2	24.7	29.6	33.3	30.1	33.5	33.2	35.2	34.3	38.6	40.2	42.8	49.5
Full-time faculty.....	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0	187.4	194.1
Teaching.....	69.9	80.2	78.4	79.7	92.1	91.9	94.9	93.6	93.9	96.7	91.4	91.9	95.4	98.6	97.9	91.5
Research.....	19.8	21.4	25.8	28.1	31.8	33.6	39.5	48.6	51.6	53.8	56.9	56.6	58.0	60.4	62.8	71.5
Other work.....	13.6	14.8	21.3	23.4	18.0	22.9	22.5	22.2	24.2	22.6	24.1	22.9	24.9	25.0	26.8	31.1
Postdocs.....	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5	17.5	15.8
Teaching.....	0.1	0.1	0.1	0.2	0.1	0.4	0.2	0.2	0.4	0.1	0.0	0.6	0.6	0.4	0.5	0.4
Research.....	3.8	5.7	6.8	6.9	7.7	7.1	7.5	8.4	10.3	9.2	12.7	15.1	16.7	16.6	15.6	14.1
Other work.....	0.2	0.4	0.7	1.0	0.7	0.7	0.9	0.7	0.8	0.6	0.7	1.1	1.5	1.5	1.4	1.3
All other types of positions.....	10.5	11.5	12.2	15.9	16.6	19.4	24.6	22.1	25.4	27.6	28.1	29.4	35.3	37.5	40.7	48.4
Teaching.....	3.3	3.5	3.6	3.9	3.7	5.4	5.9	5.5	6.6	6.6	6.9	7.7	9.4	9.5	10.6	14.0
Research.....	4.1	3.8	4.3	6.2	6.9	8.1	9.0	9.6	10.3	10.9	10.7	11.4	13.8	14.3	15.4	17.3
Other work.....	3.1	4.2	4.2	5.8	6.0	5.9	9.8	7.1	8.6	10.1	10.4	10.3	12.1	13.7	14.6	17.1
Research universities																
All positions.....	65.2	73.4	78.2	83.5	91.0	89.9	102.8	106.9	112.5	111.6	113.0	112.8	113.6	117.2	119.6	127.4
Teaching.....	32.3	36.5	33.4	34.0	39.3	36.8	38.3	36.0	35.8	34.5	32.8	31.7	33.4	33.3	31.9	28.2
Research.....	22.9	25.5	29.5	32.1	37.5	37.4	45.4	53.7	58.1	57.9	60.6	62.4	60.6	64.3	66.9	73.4
Other work.....	10.1	11.4	15.4	17.4	14.3	15.6	19.1	17.2	18.7	19.2	19.5	18.7	19.6	19.7	20.8	25.7
Full-time faculty.....	55.7	61.5	64.7	67.1	73.8	72.2	80.6	84.2	86.6	85.8	84.4	81.6	81.5	84.1	84.8	89.5
Teaching.....	31.1	35.1	32.1	32.5	37.9	34.9	35.9	33.6	32.9	32.2	30.5	29.1	29.9	30.2	28.0	24.0
Research.....	16.3	17.4	20.0	21.1	25.1	25.2	31.5	38.4	40.7	41.1	41.5	41.0	39.5	42.2	44.2	50.3
Other work.....	8.3	8.9	12.6	13.5	10.7	12.1	13.3	12.2	13.0	12.5	12.4	11.5	12.1	11.8	12.6	15.2
Postdocs.....	3.5	5.3	6.5	6.8	7.0	6.7	7.4	8.1	9.7	8.3	11.3	13.6	13.9	14.1	13.8	12.7
Teaching.....	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.2	0.2	0.1	0.0	0.3	0.4	0.3	0.4	0.2
Research.....	3.2	4.9	5.9	5.8	6.5	6.1	6.5	7.3	8.9	7.8	10.8	12.4	12.3	12.6	12.4	11.5
Other work.....	0.2	0.3	0.6	0.9	0.5	0.4	0.7	0.6	0.6	0.4	0.6	0.9	1.2	1.2	1.0	1.0
All other types of positions.....	6.0	6.6	7.1	9.6	10.2	11.0	14.8	14.5	16.2	17.5	17.3	17.5	18.2	19.0	21.0	25.1
Teaching.....	1.2	1.3	1.2	1.4	1.3	1.8	2.3	2.2	2.6	2.2	2.4	2.3	3.1	2.8	3.5	4.0
Research.....	3.3	3.3	3.6	5.2	5.9	6.0	7.5	7.9	8.4	9.0	8.3	8.9	8.8	9.5	10.2	11.6
Other work.....	1.6	2.2	2.2	3.0	3.1	3.1	5.0	4.4	5.1	6.4	6.6	6.2	6.4	6.8	7.3	9.5
Other universities and colleges																
All positions.....	52.7	60.7	67.2	71.8	76.0	86.2	87.4	89.0	94.1	99.0	100.8	104.8	118.9	122.9	126.0	130.9
Teaching.....	41.0	47.3	48.8	49.8	56.7	60.8	62.7	63.3	65.1	69.0	65.5	68.5	72.0	75.3	77.1	77.7
Research.....	4.9	5.3	7.5	9.2	9.0	11.4	10.6	12.8	14.1	16.0	19.6	20.7	27.9	27.1	26.9	29.4
Other work.....	6.8	8.1	10.9	12.8	10.4	13.9	14.2	12.9	14.9	14.0	15.7	15.6	19.0	20.5	21.9	23.8
Full-time faculty.....	47.6	54.9	61.0	64.1	68.2	76.2	76.2	80.2	83.2	87.3	88.1	89.7	96.8	99.9	102.6	104.6
Teaching.....	38.8	45.1	46.4	47.3	54.1	57.0	59.0	60.0	61.1	64.5	61.0	62.8	65.5	68.4	69.9	67.6
Research.....	3.5	3.9	5.8	7.0	6.7	8.4	8.0	10.1	10.9	12.7	15.3	15.5	18.5	18.3	18.6	21.1
Other work.....	5.3	5.9	8.8	9.9	7.4	10.8	9.2	10.0	11.2	10.2	11.7	11.3	12.8	13.2	14.2	15.9
Postdocs.....	0.7	0.9	1.1	1.3	1.5	1.6	1.3	1.2	1.8	1.5	2.0	3.2	5.0	4.5	3.7	3.1

S&E doctorate holders employed in research universities and other academic institutions, by type of position and primary work activity: 1973–2003

(Thousands)

Institution type, position, and primary work activity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Teaching	0.0	0.1	0.0	0.1	0.1	0.3	0.0	0.0	0.2	0.1	0.0	0.3	0.2	0.1	0.1	0.1
Research.....	0.6	0.8	0.9	1.1	1.2	1.1	1.1	1.0	1.4	1.3	1.9	2.7	4.4	4.0	3.1	2.7
Other work.....	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.4	0.3	0.4	0.3
All other types of positions	4.5	4.8	5.2	6.3	6.4	8.5	9.9	7.6	9.1	10.1	10.8	11.8	17.0	18.5	19.6	23.2
Teaching	2.1	2.1	2.5	2.5	2.4	3.6	3.7	3.2	3.8	4.4	4.6	5.3	6.3	6.7	7.1	10.0
Research.....	0.9	0.6	0.7	1.0	1.1	2.1	1.5	1.6	1.9	2.0	2.4	2.4	4.9	4.9	5.2	5.6
Other work.....	1.5	2.0	2.0	2.8	2.9	2.8	4.7	2.7	3.4	3.7	3.9	4.1	5.8	6.9	7.3	7.7

NOTES: Institutions designated by 1994 Carnegie classification code. For information on these institutional categories, see Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education*, Princeton University Press (1994), and chapter 2 sidebar, "Carnegie Classification of Academic Institutions." Full-time faculty includes full, associate, and assistant professors plus instructors. Other positions include full-time nonfaculty positions such as research associates, adjunct positions, lecturers, administrative positions, and part-time positions of all kinds. Research includes basic or applied research, development, or design. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2006

S&E doctorate holders employed in academia, by type of position, Carnegie institution type, and administrative control of institution: 1973–2003

(Thousands)

Institution control, institution type, and position	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All universities and colleges																
All academic institutions																
All positions.....	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	258.3
Full-time senior faculty.....	74.0	84.3	90.7	97.2	107.3	115.6	119.7	127.3	131.0	133.0	128.6	127.3	131.9	136.7	136.9	141.4
Full-time junior faculty.....	29.3	32.1	34.9	34.0	34.6	32.8	37.2	37.2	38.7	40.1	43.8	44.0	46.4	47.4	50.5	52.7
Full-time nonfaculty.....	7.6	8.3	8.8	11.4	12.6	13.4	18.1	16.4	19.2	20.2	22.2	23.9	26.4	29.3	31.7	35.1
Postdocs.....	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5	17.5	15.8
Part-time positions.....	2.8	3.2	3.4	4.5	4.0	6.0	6.5	5.7	6.2	7.4	5.9	5.5	8.9	8.2	9.0	13.2
Research universities																
All positions.....	65.2	73.4	78.2	83.5	91.0	89.9	102.8	106.9	112.5	111.6	113.0	112.8	113.6	117.2	119.6	127.4
Full-time senior faculty.....	41.0	45.6	48.0	50.0	55.6	56.2	61.0	65.0	66.4	65.6	62.6	61.1	61.5	64.2	63.1	66.1
Full-time junior faculty.....	14.7	15.9	16.7	17.1	18.1	16.0	19.7	19.3	20.2	20.2	21.8	20.5	20.0	20.0	21.7	23.4
Full-time nonfaculty.....	4.6	5.1	5.6	7.5	8.1	8.1	11.7	11.5	13.2	13.9	14.6	15.7	15.1	16.4	18.3	20.4
Postdocs.....	3.5	5.3	6.5	6.8	7.0	6.7	7.4	8.1	9.7	8.3	11.3	13.6	13.9	14.1	13.8	12.7
Part-time positions.....	1.5	1.5	1.5	2.1	2.1	2.9	3.1	3.0	3.0	3.6	2.7	1.8	3.1	2.6	2.8	4.7
Doctorate-granting institutions																
All positions.....	14.0	15.9	17.2	17.2	18.8	19.5	21.2	22.2	23.5	24.9	24.2	25.0	25.8	26.3	26.3	26.9
Full-time senior faculty.....	9.3	10.9	11.6	11.6	13.4	14.5	15.0	16.4	16.4	17.0	16.2	16.0	16.9	17.4	17.4	17.0
Full-time junior faculty.....	3.8	3.8	4.4	4.2	3.9	3.5	3.6	3.9	4.4	5.1	5.4	5.6	5.1	5.4	5.5	5.7
Full-time nonfaculty.....	0.4	0.6	0.5	0.8	0.8	0.7	1.6	1.1	1.3	1.7	1.7	1.9	1.9	2.0	1.9	2.7
Postdocs.....	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.5	0.3	0.5	0.8	0.9	0.8	0.7	0.6
Part-time positions.....	0.3	0.4	0.4	0.4	0.3	0.5	0.6	0.6	0.9	0.8	0.5	0.7	1.0	0.7	0.8	0.9
Comprehensive institutions																
All positions.....	21.3	24.8	26.5	26.9	30.5	31.6	35.6	36.0	38.4	39.5	39.5	41.5	42.0	43.6	44.8	46.6
Full-time senior faculty.....	14.5	17.0	18.9	19.5	22.5	24.0	26.3	27.5	28.7	29.8	29.0	29.1	28.4	29.6	29.9	30.8
Full-time junior faculty.....	5.8	6.1	6.3	5.6	6.3	5.2	6.0	6.3	6.5	6.8	7.4	8.2	9.2	9.9	10.6	10.9
Full-time nonfaculty.....	0.5	1.0	0.6	0.9	1.1	1.1	2.0	1.3	1.9	1.5	1.9	2.2	2.0	2.2	2.3	2.3
Postdocs.....	0.1	0.1	0.1	0.2	0.1	0.3	0.0	0.0	0.1	0.2	0.1	0.4	0.6	0.1	0.1	0.1
Part-time positions.....	0.4	0.5	0.6	0.8	0.6	1.0	1.2	0.9	1.2	1.2	1.0	1.6	1.7	1.8	1.9	2.4
Freestanding medical schools																
All positions.....	3.3	4.3	4.9	5.9	7.2	7.0	8.3	9.0	9.7	9.6	10.8	11.2	9.8	11.9	12.6	12.7
Full-time senior faculty.....	1.6	2.0	2.2	2.6	3.6	3.8	4.0	4.6	4.8	4.7	5.3	5.1	4.3	5.7	6.2	6.2
Full-time junior faculty.....	1.2	1.6	1.9	2.1	2.0	1.9	2.5	2.6	2.9	3.1	3.2	3.3	3.1	3.1	3.2	3.5
Full-time nonfaculty.....	0.2	0.2	0.2	0.4	0.4	0.6	0.7	0.7	1.0	0.7	1.1	1.2	0.8	1.0	1.3	1.3
Postdocs.....	0.2	0.4	0.5	0.6	1.1	0.6	0.8	0.8	0.9	0.8	1.1	1.4	1.4	1.7	1.6	1.1
Part-time positions.....	0.1	0.2	0.1	0.2	0.1	0.2	0.3	0.3	0.2	0.3	0.1	0.2	0.2	0.4	0.3	0.5
Liberal arts colleges																
All positions.....	8.8	10.4	10.8	11.3	12.0	12.6	14.0	14.6	15.3	15.8	16.0	15.8	17.3	18.5	18.6	19.1
Full-time senior faculty.....	5.6	6.3	6.6	7.2	8.1	8.4	9.3	10.3	10.8	11.2	10.9	10.7	11.1	12.3	12.1	12.0
Full-time junior faculty.....	2.5	3.1	3.3	2.9	2.7	2.9	3.2	3.1	3.1	2.9	3.7	3.9	4.4	4.5	4.3	4.6
Full-time nonfaculty.....	0.4	0.6	0.5	0.7	0.8	0.7	0.9	0.7	0.8	1.0	0.9	0.8	0.9	0.9	1.0	1.2
Postdocs.....	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1
Part-time positions.....	0.3	0.3	0.3	0.5	0.4	0.6	0.6	0.5	0.4	0.8	0.4	0.3	0.7	0.6	1.1	1.2

S&E doctorate holders employed in academia, by type of position, Carnegie institution type, and administrative control of institution: 1973–2003

(Thousands)

Institution control, institution type, and position	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Public universities and colleges																
All academic institutions																
All positions.....	80.9	93.0	100.4	104.3	113.9	115.9	130.2	135.3	141.2	142.6	144.6	145.7	148.7	153.1	156.4	162.9
Full-time senior faculty	52.4	60.2	65.2	66.9	76.2	79.7	85.0	90.7	92.6	93.7	90.6	88.7	89.8	92.5	91.9	95.3
Full-time junior faculty	20.4	22.1	23.7	22.4	22.7	20.2	24.1	25.0	25.4	25.8	27.9	28.3	28.2	29.4	31.7	32.3
Full-time nonfaculty	4.1	5.2	5.1	7.4	8.0	7.8	11.9	10.2	12.5	13.4	14.1	15.3	15.4	16.5	18.3	19.6
Postdocs	2.3	3.6	4.4	4.8	4.8	4.6	4.7	5.3	6.4	5.3	8.2	9.9	9.8	9.9	8.9	7.3
Part-time positions.....	1.5	2.0	2.1	2.8	2.3	3.7	4.4	4.1	4.2	4.4	3.9	3.5	5.6	4.9	5.5	8.5
Research universities																
All positions	48.8	54.8	58.6	62.9	66.7	66.6	75.3	79.0	81.7	80.8	81.9	80.8	82.9	83.6	84.3	88.2
Full-time senior faculty	31.8	35.4	37.7	39.2	43.3	44.3	47.2	50.7	51.5	50.8	48.5	47.1	48.3	48.7	47.4	49.8
Full-time junior faculty	11.0	11.8	12.4	12.8	12.5	11.2	13.9	14.0	14.2	13.7	14.9	14.0	13.7	13.8	15.2	15.6
Full-time nonfaculty	3.0	3.3	3.7	5.1	5.4	5.4	7.9	7.3	8.5	9.4	9.4	10.2	10.7	11.5	12.6	13.5
Postdocs.....	2.0	3.1	3.8	4.1	3.9	3.7	4.0	4.5	5.3	4.3	7.0	8.1	8.0	7.9	7.1	6.0
Part-time positions.....	1.0	1.1	1.1	1.6	1.5	2.0	2.3	2.5	2.3	2.6	2.0	1.4	2.3	1.7	2.0	3.4
Doctorate-granting institutions																
All positions	10.2	11.4	12.2	11.8	13.3	13.7	15.0	15.3	16.5	17.3	16.9	17.7	18.4	18.5	18.4	18.8
Full-time senior faculty	6.9	8.1	8.5	8.1	9.7	10.4	10.6	11.6	11.6	12.1	11.6	11.6	12.3	12.5	12.4	12.2
Full-time junior faculty	2.7	2.6	2.9	2.8	2.7	2.3	2.5	2.6	3.1	3.5	3.6	3.8	3.7	3.7	3.7	3.8
Full-time nonfaculty	0.3	0.4	0.3	0.6	0.6	0.5	1.3	0.7	0.9	1.1	1.0	1.3	1.4	1.3	1.4	1.8
Postdocs.....	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.2	0.4	0.5	0.5	0.6	0.5	0.4
Part-time positions.....	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.3	0.6	0.4	0.2	0.4	0.5	0.3	0.4	0.6
Comprehensive institutions																
All positions	16.2	18.8	20.4	19.9	22.4	23.6	26.2	26.8	28.2	28.4	28.9	30.2	31.0	31.5	32.5	33.2
Full-time senior faculty	11.0	12.9	14.6	14.7	17.0	18.2	19.8	20.5	21.3	21.9	21.5	21.4	21.0	21.6	22.0	22.1
Full-time junior faculty	4.5	4.9	4.9	3.8	4.2	3.7	4.1	4.5	4.6	4.6	5.2	6.0	6.6	7.1	7.4	7.5
Full-time nonfaculty	0.4	0.7	0.4	0.8	0.9	0.9	1.4	1.0	1.4	1.3	1.4	1.7	1.6	1.6	1.9	1.8
Postdocs.....	0.1	0.1	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.2	0.1	0.3	0.5	0.1	0.1	0.1
Part-time positions.....	0.2	0.3	0.4	0.5	0.3	0.7	0.9	0.7	0.8	0.5	0.6	0.9	1.3	1.2	1.1	1.8
Freestanding medical schools																
All positions	2.3	3.1	3.6	4.3	5.4	5.2	5.9	6.1	6.6	6.8	7.4	7.7	6.4	8.2	9.0	8.6
Full-time senior faculty	1.1	1.4	1.6	1.9	2.7	2.9	3.0	3.3	3.3	3.5	3.8	3.7	3.0	4.0	4.5	4.5
Full-time junior faculty	0.9	1.2	1.4	1.4	1.5	1.3	1.6	1.6	1.8	2.0	2.1	2.4	1.9	2.0	2.2	2.4
Full-time nonfaculty	0.2	0.1	0.2	0.4	0.3	0.4	0.4	0.4	0.7	0.5	0.8	0.8	0.5	0.6	0.9	0.7
Postdocs.....	0.1	0.3	0.3	0.5	0.8	0.4	0.6	0.5	0.6	0.5	0.7	0.8	0.8	1.2	1.1	0.7
Part-time positions.....	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.3	0.2	0.4
Liberal arts colleges																
All positions	1.0	1.3	1.5	1.5	1.7	1.9	2.2	2.5	2.7	2.6	2.6	2.4	3.0	2.7	2.9	3.1
Full-time senior faculty	0.6	0.7	0.9	1.0	1.2	1.3	1.5	1.8	1.8	2.0	2.0	1.6	2.0	1.9	1.8	1.7
Full-time junior faculty	0.3	0.4	0.4	0.3	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.6	0.7	0.6	0.7	0.9
Full-time nonfaculty	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Postdocs.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Part-time positions.....	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2

S&E doctorate holders employed in academia, by type of position, Carnegie institution type, and administrative control of institution: 1973–2003

(Thousands)

Institution control, institution type, and position	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Private universities and colleges																
All academic institutions																
All positions.....	34.7	40.0	42.2	45.0	51.0	50.3	58.3	60.2	65.1	67.0	67.1	68.7	68.8	74.8	76.7	77.3
Full-time senior faculty	21.0	23.6	24.3	26.2	29.8	30.2	34.0	36.4	38.3	39.1	37.2	37.3	36.6	41.3	41.9	41.4
Full-time junior faculty	8.7	9.8	10.8	10.7	11.7	10.6	12.6	12.0	13.2	14.1	15.5	15.1	15.7	16.1	16.4	17.3
Full-time nonfaculty	2.3	2.9	2.9	3.4	4.3	4.2	5.9	6.1	6.6	6.6	7.7	7.8	6.6	7.4	8.0	9.3
Postdocs	1.7	2.5	3.2	3.2	3.7	3.3	3.8	4.0	5.0	4.5	4.9	6.6	7.4	7.1	7.4	5.9
Part-time positions.....	1.1	1.2	1.1	1.5	1.6	2.0	1.9	1.6	1.9	2.8	1.8	1.8	2.6	2.8	3.0	3.4
Research universities																
All positions	16.4	18.6	19.6	20.6	24.4	23.2	27.5	27.9	30.8	30.8	31.1	32.0	30.7	33.6	35.3	35.0
Full-time senior faculty	9.3	10.1	10.3	10.7	12.4	11.9	13.7	14.2	14.9	14.8	14.1	14.1	13.3	15.5	15.7	15.4
Full-time junior faculty	3.7	4.1	4.2	4.3	5.6	4.8	5.8	5.3	6.1	6.5	6.9	6.5	6.3	6.1	6.5	7.2
Full-time nonfaculty	1.6	1.8	1.9	2.4	2.7	2.7	3.8	4.3	4.7	4.5	5.2	5.5	4.4	4.9	5.6	6.1
Postdocs.....	1.4	2.1	2.8	2.7	3.1	2.9	3.4	3.6	4.4	4.0	4.3	5.5	5.9	6.2	6.6	5.2
Part-time positions.....	0.5	0.4	0.4	0.5	0.6	0.9	0.8	0.5	0.8	1.0	0.6	0.4	0.9	0.9	0.8	1.1
Doctorate-granting institutions																
All positions	3.8	4.5	5.0	5.4	5.5	5.8	6.2	6.9	7.1	7.5	7.3	7.3	7.4	7.9	7.9	7.8
Full-time senior faculty	2.4	2.8	3.1	3.4	3.7	4.1	4.4	4.8	4.8	4.9	4.6	4.4	4.5	4.9	5.0	4.7
Full-time junior faculty	1.1	1.3	1.5	1.4	1.2	1.2	1.1	1.3	1.3	1.6	1.7	1.7	1.4	1.7	1.8	1.8
Full-time nonfaculty	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.6	0.7	0.6	0.5	0.6	0.5	0.9
Postdocs.....	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.5	0.2	0.2	0.1
Part-time positions.....	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.3	0.3
Comprehensive institutions																
All positions	5.1	5.9	6.2	7.0	8.2	8.0	9.4	9.2	10.1	11.1	10.6	11.2	11.0	12.1	12.3	12.8
Full-time senior faculty	3.5	4.1	4.3	4.8	5.5	5.8	6.5	7.0	7.4	8.0	7.5	7.7	7.4	8.0	8.0	8.3
Full-time junior faculty	1.2	1.3	1.4	1.8	2.1	1.5	1.9	1.8	1.9	2.2	2.2	2.2	2.6	2.9	3.2	3.3
Full-time nonfaculty	0.2	0.3	0.2	0.2	0.2	0.3	0.7	0.2	0.5	0.2	0.5	0.5	0.5	0.6	0.4	0.5
Postdocs.....	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Part-time positions.....	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.4	0.7	0.4	0.7	0.5	0.6	0.7	0.6
Freestanding medical schools																
All positions	0.9	1.2	1.3	1.5	1.8	1.8	2.3	2.9	3.1	2.8	3.4	3.4	3.5	3.7	3.6	3.1
Full-time senior faculty	0.4	0.5	0.6	0.7	0.9	0.9	1.0	1.3	1.4	1.3	1.5	1.5	1.2	1.6	1.7	1.4
Full-time junior faculty	0.4	0.4	0.5	0.6	0.5	0.5	0.8	1.0	1.1	1.0	1.1	1.0	1.2	1.1	0.9	0.9
Full-time nonfaculty	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.4	0.3	0.4	0.4	0.4
Postdocs.....	0.0	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.7	0.5	0.5	0.3
Part-time positions.....	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1

S&E doctorate holders employed in academia, by type of position, Carnegie institution type, and administrative control of institution: 1973–2003

(Thousands)

Institution control, institution type, and position	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Liberal arts colleges																
All positions	7.8	9.1	9.3	9.8	10.4	10.6	11.8	12.1	12.6	13.2	13.4	13.4	14.3	15.8	15.7	15.7
Full-time senior faculty	5.0	5.6	5.6	6.1	6.9	7.1	7.8	8.5	9.0	9.2	8.9	9.1	9.1	10.4	10.3	10.2
Full-time junior faculty	2.1	2.7	2.9	2.6	2.3	2.4	2.8	2.5	2.6	2.4	3.2	3.4	3.8	3.9	3.6	3.6
Full-time nonfaculty	0.3	0.5	0.4	0.6	0.7	0.6	0.7	0.6	0.6	0.9	0.8	0.6	0.6	0.7	0.9	0.9
Postdocs	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1
Part-time positions	0.2	0.3	0.2	0.4	0.4	0.5	0.4	0.4	0.4	0.6	0.4	0.2	0.6	0.5	0.9	0.9

NOTES: Employment at institutions without Carnegie code or with unknown administrative control included only in total. Freestanding schools of engineering and technology included under comprehensive institutions. Senior faculty includes full and associate professors; junior faculty includes assistant professors and instructors; and full-time nonfaculty includes positions such as research associates, adjunct positions, lecturers, and administrative positions. Institutions designated by 1994 Carnegie classification code. For information on these institutional categories see Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education*, Princeton University Press (1994), and chapter 2 sidebar, "Carnegie Classification of Academic Institutions." Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2006

S&E doctorate holders employed in academia, by type of position and degree field: 1973–2003

(Thousands)

Position and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All positions																
All fields	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	258.3
Science	105.6	120.7	130.7	139.5	151.0	158.1	170.4	174.8	183.9	187.8	190.6	193.7	205.9	214.7	218.9	230.0
Physical sciences	22.1	23.6	25.0	24.6	25.4	25.1	27.0	27.2	27.7	27.7	28.6	29.3	30.2	30.9	30.4	31.5
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2	14.9	15.4
Computer sciences	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7	3.8	5.2
Earth, atmospheric, and ocean sciences	3.4	3.9	4.2	4.2	4.6	4.8	5.2	5.6	5.9	6.0	6.4	6.4	7.3	7.8	8.2	8.8
Life sciences	34.9	39.4	42.6	47.0	51.3	54.9	58.7	61.3	64.8	66.9	68.2	71.6	77.3	81.9	84.3	89.2
Psychology	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0	30.4	31.3
Social sciences	23.4	28.0	31.1	33.6	36.9	38.9	42.0	42.2	44.5	44.8	44.4	42.5	44.9	46.2	46.9	48.6
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.9	22.8	23.1	23.8	26.6	25.5	26.6	28.3
All full-time faculty																
All fields	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0	187.4	194.1
Science	92.0	104.2	112.2	116.9	127.3	132.0	139.0	145.2	149.6	153.1	152.3	151.3	156.8	163.0	165.5	171.3
Physical sciences	17.8	18.9	20.0	20.0	20.5	20.2	21.2	22.0	21.5	21.7	21.3	20.9	21.4	21.7	21.6	22.5
Mathematics	9.3	10.4	10.9	11.4	11.7	12.3	12.7	12.9	13.5	14.2	14.7	13.0	13.6	13.1	12.6	13.0
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.8	2.3	2.8	3.0	3.3	3.3	4.2
Earth, atmospheric, and ocean sciences	3.0	3.4	3.6	3.5	3.8	4.0	4.2	4.4	4.7	4.5	4.5	4.7	5.1	5.6	5.9	6.1
Life sciences	29.5	33.1	34.9	37.3	40.9	43.5	45.6	48.1	49.3	51.1	50.8	52.8	55.2	58.1	60.4	63.2
Psychology	10.8	12.8	13.9	14.3	16.4	17.3	18.5	19.2	20.2	20.7	19.5	20.1	20.8	21.9	22.6	21.7
Social sciences	21.6	25.5	28.8	30.4	33.7	34.4	36.1	37.7	39.0	39.0	39.2	37.1	37.7	39.2	39.2	40.5
Engineering	11.3	12.2	13.5	14.3	14.7	16.4	17.9	19.3	20.2	20.1	20.1	20.0	21.5	21.1	21.9	22.8
Full-time professors																
All fields	42.6	47.9	51.0	57.5	64.4	69.9	72.8	79.1	83.1	82.5	80.0	77.7	80.9	83.1	84.8	87.2
Science	37.8	42.4	44.7	50.1	56.4	60.9	63.7	68.7	72.5	72.6	69.7	68.6	70.2	72.4	74.1	75.9
Physical sciences	7.7	8.6	9.2	10.0	11.2	11.9	12.6	13.5	13.2	12.8	12.1	11.6	11.4	11.6	11.2	11.6
Mathematics	3.2	3.5	3.9	4.4	5.0	5.6	6.1	6.5	6.9	6.7	7.1	6.6	6.9	6.6	6.6	6.5
Computer sciences	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.7	0.8	1.2
Earth, atmospheric, and ocean sciences	1.3	1.4	1.6	1.7	1.9	2.0	2.0	2.0	2.3	2.0	2.1	2.3	2.4	2.6	2.8	2.7
Life sciences	12.3	13.6	13.9	15.5	17.0	19.3	19.6	21.7	22.5	22.9	21.2	22.5	22.5	23.3	24.5	25.4
Psychology	3.9	4.6	4.8	5.6	6.5	7.0	7.6	8.3	9.1	9.5	8.7	8.7	9.5	9.4	9.9	9.7
Social sciences	9.4	10.6	11.3	12.9	14.7	15.1	15.9	16.8	18.5	18.6	18.4	16.6	17.1	18.2	18.2	18.7
Engineering	4.7	5.6	6.4	7.4	8.0	9.0	9.2	10.4	10.6	9.9	10.3	9.1	10.7	10.6	10.7	11.3

S&E doctorate holders employed in academia, by type of position and degree field: 1973–2003

(Thousands)

Position and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Full-time associate professors																
All fields	31.4	36.3	39.7	39.7	42.9	45.7	46.9	48.2	47.9	50.5	48.6	49.6	51.0	53.6	52.2	54.2
Science	27.4	32.2	35.3	35.5	38.5	40.9	42.2	43.3	42.6	44.7	43.3	43.5	45.2	47.6	46.1	48.2
Physical sciences.....	5.3	6.0	6.1	6.0	5.6	5.2	5.1	4.9	4.5	4.7	4.8	4.8	5.2	5.1	5.3	5.4
Mathematics.....	2.8	3.4	3.7	3.9	4.0	4.1	4.0	4.1	4.0	5.1	4.4	4.0	3.9	4.1	3.6	3.7
Computer sciences	NA	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.8	0.7	1.4	1.4	1.4	1.6	1.7
Earth, atmospheric, and ocean sciences....	0.9	1.1	1.1	1.1	1.0	1.1	1.2	1.2	1.3	1.6	1.6	1.3	1.3	1.5	1.4	1.6
Life sciences.....	8.6	9.8	10.7	11.5	12.5	13.4	14.1	14.1	14.0	14.6	14.6	14.7	15.8	17.3	16.7	17.7
Psychology	3.3	4.1	4.3	4.3	5.2	5.9	5.9	6.0	5.9	5.9	5.6	5.8	5.8	6.2	6.0	5.9
Social sciences	6.5	7.9	9.4	8.8	10.2	11.2	11.8	12.7	12.6	12.0	11.6	11.5	11.7	11.9	11.4	12.2
Engineering.....	4.0	4.2	4.4	4.2	4.4	4.7	4.7	4.9	5.3	5.9	5.3	6.2	5.8	6.0	6.1	5.9
Full-time junior faculty																
All fields	29.3	32.1	34.9	34.0	34.6	32.8	37.2	37.2	38.7	40.1	43.8	44.0	46.4	47.4	50.5	52.7
Science	26.7	29.6	32.2	31.3	32.3	30.2	33.1	33.2	34.4	35.8	39.3	39.3	41.5	42.9	45.4	47.2
Physical sciences.....	4.8	4.3	4.8	4.0	3.7	3.1	3.5	3.6	3.7	4.1	4.3	4.5	4.8	5.1	5.0	5.5
Mathematics.....	3.3	3.5	3.3	3.1	2.6	2.5	2.7	2.4	2.6	2.4	3.2	2.4	2.8	2.4	2.3	2.8
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.6	0.6	0.9	1.0	1.4	1.2	1.3	1.2	0.9	1.3
Earth, atmospheric, and ocean sciences....	0.8	0.9	0.9	0.7	0.9	0.9	1.1	1.1	1.1	0.9	0.9	1.1	1.3	1.5	1.7	1.8
Life sciences.....	8.5	9.7	10.3	10.3	11.3	10.8	11.9	12.3	12.8	13.7	15.0	15.6	16.9	17.5	19.2	20.1
Psychology	3.6	4.2	4.8	4.4	4.8	4.5	5.0	4.9	5.2	5.4	5.2	5.5	5.5	6.2	6.6	6.1
Social sciences	5.7	7.1	8.2	8.6	8.8	8.1	8.4	8.2	7.9	8.4	9.3	9.0	8.9	9.1	9.6	9.5
Engineering.....	2.6	2.5	2.7	2.8	2.3	2.7	4.0	4.0	4.3	4.3	4.5	4.8	5.0	4.5	5.1	5.6
All other full-time positions																
All fields	7.6	8.3	8.8	11.4	12.6	13.4	18.1	16.4	19.2	20.2	22.2	23.9	26.4	29.3	31.7	35.1
Science	6.8	7.4	8.0	10.5	11.5	12.3	16.6	15.3	17.7	18.4	20.7	21.7	23.3	26.4	28.3	31.6
Physical sciences.....	1.9	1.9	2.1	2.0	2.4	2.5	3.0	2.6	3.3	3.2	3.7	3.8	4.6	5.6	5.5	6.0
Mathematics.....	0.2	0.3	0.4	0.4	0.4	0.3	0.5	0.4	0.5	0.6	0.5	0.6	0.8	0.8	1.0	1.1
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.6
Earth, atmospheric, and ocean sciences....	0.3	0.3	0.3	0.5	0.5	0.5	0.7	0.8	0.7	0.9	1.1	1.1	1.4	1.4	1.6	1.9
Life sciences.....	2.5	2.4	2.8	3.9	4.0	4.6	6.2	6.0	6.7	7.2	7.7	8.4	8.4	9.5	10.5	11.9
Psychology	0.8	1.0	1.2	1.8	2.2	2.2	2.9	2.8	2.9	2.8	3.9	3.9	4.0	4.6	4.9	5.6
Social sciences	1.0	1.5	1.2	1.9	2.0	2.2	3.2	2.6	3.5	3.5	3.7	3.6	3.9	4.3	4.5	4.5
Engineering.....	0.8	0.9	0.8	0.9	1.1	1.1	1.5	1.1	1.5	1.8	1.5	2.1	3.1	3.0	3.4	3.6

S&E doctorate holders employed in academia, by type of position and degree field: 1973–2003

(Thousands)

Position and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Postdocs																
All fields	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5	17.5	15.8
Science.....	4.0	5.9	7.2	7.8	8.4	8.0	8.5	8.8	10.9	9.4	12.3	15.6	17.2	17.5	16.6	14.6
Physical sciences.....	1.7	2.1	2.2	1.9	1.9	1.4	1.9	2.0	2.4	1.9	3.0	3.9	3.2	2.9	2.6	2.2
Mathematics.....	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6	0.8	0.5
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Earth, atmospheric, and ocean sciences....	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.6	0.5	0.4	0.4
Life sciences.....	1.9	3.0	4.0	4.7	5.2	5.1	5.2	5.6	6.8	6.4	8.2	9.2	10.8	11.7	11.0	10.0
Psychology	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.5	0.4	1.1	1.3	1.2	1.2	0.9
Social sciences	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.7	0.5	0.6	0.5
Engineering.....	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1	0.9	1.1
Part-time positions																
All fields	2.9	3.2	3.4	4.5	4.0	6.0	6.5	5.7	6.2	7.4	5.9	5.5	8.9	8.2	9.0	13.2
Science.....	2.8	3.1	3.2	4.3	3.9	5.7	6.2	5.4	5.6	6.9	5.4	5.1	8.6	7.9	8.5	12.5
Physical sciences.....	0.6	0.6	0.6	0.7	0.6	1.0	0.9	0.6	0.5	0.9	0.7	0.7	1.0	0.7	0.7	0.8
Mathematics.....	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.7	0.7	0.6	0.8
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2
Earth, atmospheric, and ocean sciences.....	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.4
Life sciences.....	0.9	0.9	1.0	1.2	1.2	1.7	1.7	1.6	1.9	2.3	1.6	1.2	2.9	2.6	2.4	4.0
Psychology.....	0.4	0.5	0.6	1.0	0.8	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1	1.3	1.8	3.1
Social sciences	0.7	0.8	0.8	1.0	1.0	1.6	2.2	1.8	1.7	2.0	1.3	1.3	2.6	2.2	2.7	3.1
Engineering.....	0.1	0.1	0.1	0.3	0.2	0.4	0.3	0.3	0.5	0.5	0.5	0.4	0.3	0.4	0.4	0.8

NA = not available

NOTES: Faculty defined by position: professors and associate professors are senior faculty; assistant professors and instructors are junior faculty; other full-time positions include nonfaculty positions such as research associates, adjunct positions, lecturers, and administrative positions. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Recent S&E doctorate holders employed in academia, by years since doctorate, Carnegie institution type, type of position, and tenure status: 1973–2003

(Percent distribution)

Years since doctorate and institution type	Total	Position			Tenure track			Not tenure tracked
		Full-time faculty	Postdocs	Other	Total	Tenured	Untenured	
1–3 years								
All universities and colleges								
1973	100.0	73.6	13.0	13.4	NA	NA	NA	NA
1975	100.0	70.4	18.3	11.3	NA	NA	NA	NA
1977	100.0	64.8	22.9	12.3	NA	NA	NA	NA
1979	100.0	59.2	25.0	15.8	45.1	7.4	37.7	54.9
1981	100.0	56.9	28.4	14.7	45.0	5.2	39.8	55.0
1983	100.0	56.5	27.9	15.7	66.2	8.4	57.8	33.8
1985	100.0	54.7	27.4	17.9	49.0	4.2	44.8	51.0
1987	100.0	51.8	29.8	18.5	48.6	3.8	44.8	51.4
1989	100.0	47.6	33.5	19.0	44.1	3.7	40.4	55.9
1991	100.0	55.1	27.4	17.5	65.2	4.6	60.6	34.8
1993	100.0	47.6	33.4	19.0	36.3	1.9	34.4	63.7
1995	100.0	41.4	39.6	19.0	31.2	2.6	28.6	68.8
1997	100.0	40.6	41.4	18.0	32.0	2.6	29.5	68.0
1999	100.0	37.3	43.1	19.5	28.8	2.0	26.8	71.2
2001	100.0	43.6	39.1	17.3	33.7	2.7	31.0	66.3
2003	100.0	44.5	34.0	21.6	36.5	2.1	34.4	63.5
Research universities								
1973	100.0	60.3	21.8	17.9	NA	NA	NA	NA
1975	100.0	56.6	29.0	14.4	NA	NA	NA	NA
1977	100.0	50.5	36.0	13.5	NA	NA	NA	NA
1979	100.0	47.7	35.6	16.6	34.8	1.6	33.2	65.2
1981	100.0	45.6	38.8	15.6	36.3	1.1	35.2	63.7
1983	100.0	43.3	40.5	16.2	56.9	2.6	54.3	43.1
1985	100.0	43.5	37.2	19.3	39.6	0.6	39.1	60.4
1987	100.0	40.0	40.3	19.7	39.2	1.3	37.9	60.8
1989	100.0	36.3	44.2	19.5	36.0	1.2	34.8	64.0
1991	100.0	41.9	38.4	19.7	57.3	2.4	55.0	42.7
1993	100.0	33.4	46.3	20.3	23.7	0.7	23.0	76.3
1995	100.0	26.7	54.4	18.8	19.6	0.4	19.2	80.4
1997	100.0	26.8	56.4	16.9	19.5	0.6	18.9	80.5
1999	100.0	24.1	57.9	18.0	18.9	0.7	18.2	81.1
2001	100.0	29.8	52.8	17.5	22.3	1.1	21.2	77.7
2003	100.0	31.2	47.6	21.2	25.4	0.4	25.0	74.6
Other universities and colleges								
1973	100.0	87.1	4.0	8.9	NA	NA	NA	NA
1975	100.0	86.5	5.9	7.6	NA	NA	NA	NA
1977	100.0	82.0	7.2	10.8	NA	NA	NA	NA
1979	100.0	75.6	9.9	14.5	59.5	15.6	43.9	40.5

Recent S&E doctorate holders employed in academia, by years since doctorate, Carnegie institution type, type of position, and tenure status: 1973–2003

(Percent distribution)

Years since doctorate and institution type	Total	Position			Tenure track			Not tenure tracked
		Full-time faculty	Postdocs	Other	Total	Tenured	Untenured	
1981	100.0	75.7	11.1	13.1	59.4	12.1	47.4	40.6
1983	100.0	75.2	9.9	14.9	76.9	15.1	61.8	23.1
1985	100.0	73.5	10.8	15.7	63.5	9.9	53.6	36.5
1987	100.0	73.2	10.6	16.1	64.4	8.1	56.4	35.6
1989	100.0	67.9	14.2	17.9	56.9	7.5	49.4	43.1
1991	100.0	75.0	10.7	14.3	73.0	6.7	66.2	27.0
1993	100.0	69.9	13.2	16.9	56.1	3.8	52.3	43.9
1995	100.0	63.3	17.5	19.2	48.6	5.9	42.7	51.4
1997	100.0	57.9	22.7	19.4	47.6	4.9	42.6	52.4
1999	100.0	55.0	23.4	21.6	42.1	3.7	38.4	57.9
2001	100.0	62.3	20.7	17.0	49.1	4.8	44.3	50.9
2003	100.0	62.2	15.7	22.1	51.3	4.3	47.0	48.7
4–7 years								
All universities and colleges								
1973	100.0	89.2	2.3	8.4	NA	NA	NA	NA
1975	100.0	87.1	4.3	8.3	NA	NA	NA	NA
1977	100.0	85.0	5.3	9.7	NA	NA	NA	NA
1979	100.0	81.2	6.1	12.9	65.7	26.3	39.4	32.8
1981	100.0	80.8	6.3	13.2	70.3	24.9	45.3	28.4
1983	100.0	76.8	5.7	17.2	65.7	23.8	42.0	26.1
1985	100.0	76.9	6.9	16.4	65.2	19.4	45.8	29.0
1987	100.0	75.0	7.6	17.2	60.4	16.6	43.8	28.9
1989	100.0	73.2	9.1	17.8	59.5	12.6	46.9	30.1
1991	100.0	75.0	7.1	17.6	65.1	21.2	43.9	24.7
1993	100.0	72.1	11.1	16.7	60.4	12.4	48.0	39.6
1995	100.0	70.3	12.9	16.8	59.3	12.4	46.9	40.7
1997	100.0	66.3	14.8	19.0	54.1	11.6	42.5	45.9
1999	100.0	65.4	14.1	20.5	52.4	10.4	42.0	47.6
2001	100.0	63.1	13.2	23.7	49.6	9.0	40.6	50.4
2003	100.0	64.9	9.7	25.4	53.7	12.5	41.1	46.3
Research universities								
1973	100.0	86.6	3.7	9.7	NA	NA	NA	NA
1975	100.0	82.1	7.7	9.8	NA	NA	NA	NA
1977	100.0	77.8	9.4	13.3	NA	NA	NA	NA
1979	100.0	74.0	9.8	16.7	60.0	20.2	39.8	38.5
1981	100.0	74.4	8.9	16.8	61.6	16.2	45.4	36.8
1983	100.0	70.5	8.7	21.2	60.2	14.4	45.8	31.9
1985	100.0	69.1	10.9	20.0	58.7	11.9	46.8	35.0
1987	100.0	67.0	11.4	21.9	53.1	12.2	40.9	35.1
1989	100.0	65.1	13.7	20.9	52.3	7.5	44.8	35.9

Recent S&E doctorate holders employed in academia, by years since doctorate, Carnegie institution type, type of position, and tenure status: 1973–2003

(Percent distribution)

Years since doctorate and institution type	Total	Position			Tenure track			Not tenure tracked
		Full-time faculty	Postdocs	Other	Total	Tenured	Untenured	
1991	100.0	65.9	11.6	22.8	56.9	16.2	40.7	28.2
1993	100.0	64.5	17.5	18.6	52.4	6.9	45.5	47.6
1995	100.0	59.9	19.8	19.9	49.0	7.6	41.3	51.0
1997	100.0	55.2	21.3	23.1	43.5	5.9	37.7	56.5
1999	100.0	54.8	21.0	24.3	41.8	5.8	36.0	58.2
2001	100.0	50.0	22.1	28.0	37.9	4.9	33.0	62.1
2003	100.0	53.7	15.9	30.4	43.7	8.1	35.6	56.3
Other universities and colleges								
1973	100.0	92.0	0.9	7.1	NA	NA	NA	NA
1975	100.0	91.8	1.1	6.8	NA	NA	NA	NA
1977	100.0	92.1	1.6	6.5	NA	NA	NA	NA
1979	100.0	89.2	1.9	8.7	71.9	32.9	39.0	26.5
1981	100.0	87.9	3.4	9.3	80.1	34.8	45.3	18.9
1983	100.0	84.4	2.7	13.4	71.3	33.3	38.1	20.3
1985	100.0	86.2	2.2	12.1	73.0	28.5	44.5	21.9
1987	100.0	87.4	2.4	10.9	70.4	22.6	47.7	20.4
1989	100.0	84.6	2.4	13.3	69.7	19.9	49.8	22.0
1991	100.0	86.3	2.2	11.2	75.2	27.4	47.9	20.3
1993	100.0	82.6	3.4	14.6	70.2	19.1	51.1	29.8
1995	100.0	81.6	5.1	13.2	71.2	17.9	53.3	28.8
1997	100.0	77.5	7.7	14.9	64.6	17.3	47.3	35.4
1999	100.0	75.3	7.6	16.9	62.3	14.7	47.7	37.7
2001	100.0	76.1	4.5	19.4	61.1	13.0	48.1	38.9
2003	100.0	75.6	3.8	20.6	63.2	16.8	46.4	36.8

NA = not available

NOTES: Institutions designated by 1994 Carnegie classification code. For information on these institutional categories, see Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education*, Princeton University Press (1994), and chapter 2 sidebar, "Carnegie Classification of Academic Institutions." Recent doctorate holders defined as having earned doctorate within either 3 years or 4–7 years preceding survey year. Full-time faculty includes full, associate, and assistant professors plus instructors. Other positions include full-time nonfaculty appointments such as research associates, adjunct appointments, lecturers, administrative positions, and part-time appointments of all kinds. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-26

(Page 1 of 2)

Age distribution of S&E doctorate holders employed in academia, by type of position: 1973–2003

Position	Age (years)		Age distribution (%)					
	Mean	Median	All ages	<35	35–44	45–54	55–64	≥65
All positions								
1973	42.0	40.0	100.0	28.3	35.2	23.3	10.9	2.2
1975	42.4	39.9	100.0	25.9	36.8	23.7	11.7	2.0
1977	42.7	40.0	100.0	22.9	38.9	23.8	12.4	2.0
1979	43.3	40.7	100.0	20.1	40.3	23.8	13.6	2.2
1981	44.0	41.5	100.0	18.3	40.5	23.7	14.5	2.9
1983	44.8	42.5	100.0	14.9	40.8	25.2	15.7	3.4
1985	45.2	43.2	100.0	14.2	39.2	26.8	15.9	3.8
1987	45.6	44.2	100.0	12.9	36.5	30.6	16.5	3.5
1989	46.1	45.0	100.0	12.1	34.7	32.2	16.9	4.1
1991	46.3	45.3	100.0	11.5	33.7	34.2	16.9	3.8
1993	45.8	45.0	100.0	13.3	33.3	34.4	16.1	3.0
1995	46.2	45.3	100.0	12.7	32.9	33.6	17.4	3.5
1997	46.6	45.8	100.0	13.3	30.7	32.8	19.6	3.6
1999	47.0	46.3	100.0	12.2	30.5	31.0	22.5	3.8
2001	47.4	46.9	100.0	12.0	29.1	31.8	23.1	4.0
2003	47.3	47.0	100.0	12.8	28.7	30.8	23.9	3.8
Full-time faculty								
1973	42.4	41.0	100.0	25.6	36.6	24.6	11.3	2.0
1975	42.8	40.6	100.0	22.9	38.2	25.1	12.0	1.8
1977	43.3	40.9	100.0	19.2	40.1	25.7	13.3	1.7
1979	44.0	41.6	100.0	16.2	41.1	25.9	14.7	2.0
1981	44.7	42.4	100.0	14.7	41.2	25.8	15.7	2.7
1983	45.5	43.4	100.0	11.3	41.2	27.5	17.2	2.8
1985	45.8	43.9	100.0	10.8	39.6	29.0	17.0	3.5
1987	46.6	45.1	100.0	9.2	35.9	33.2	18.1	3.5
1989	47.1	46.0	100.0	8.3	33.8	35.4	18.8	3.8
1991	47.0	46.4	100.0	8.8	32.7	36.8	18.3	3.4
1993	46.9	46.0	100.0	9.3	32.4	36.9	18.0	3.3
1995	47.5	46.9	100.0	8.0	31.9	36.6	19.8	3.8
1997	48.0	47.5	100.0	8.2	29.9	35.6	22.2	4.0
1999	48.5	48.0	100.0	7.3	29.4	33.3	25.7	4.3
2001	48.8	48.3	100.0	7.6	28.0	34.1	25.9	4.4
2003	48.6	49.0	100.0	8.8	27.7	32.3	26.8	4.4
Postdocs								
1973	32.1	31.0	100.0	81.2	15.2	3.0	0.6	0.0
1975	32.7	31.2	100.0	78.0	18.7	2.0	1.1	0.2
1977	32.9	31.1	100.0	75.3	21.7	2.4	0.6	0.0
1979	33.1	31.6	100.0	71.7	25.5	2.1	0.7	0.0
1981	33.1	31.6	100.0	71.9	24.6	2.6	0.6	0.3
1983	33.7	31.7	100.0	68.4	27.0	3.5	1.0	0.2
1985	33.3	31.9	100.0	70.6	27.2	2.1	0.1	0.0
1987	33.8	32.0	100.0	68.4	28.3	2.4	0.5	0.4
1989	34.6	32.6	100.0	63.9	29.9	4.5	1.0	0.7
1991	34.7	33.1	100.0	57.2	39.0	2.8	1.0	0.0
1993	33.9	32.7	100.0	62.3	34.7	2.5	0.5	0.0
1995	35.0	33.0	100.0	56.6	35.9	5.8	1.6	0.1
1997	35.0	33.0	100.0	60.7	32.3	4.6	2.1	0.3
1999	34.5	33.0	100.0	57.6	36.8	5.3	0.3	0.0
2001	34.6	33.0	100.0	59.9	34.6	4.5	0.8	0.1
2003	34.9	33.0	100.0	60.0	32.4	6.5	1.1	0.0
Other positions								
1973	41.9	39.0	100.0	34.6	30.3	18.7	10.9	5.4
1975	43.3	40.0	100.0	27.5	32.0	21.8	13.4	5.4
1977	42.5	38.3	100.0	28.4	37.4	17.5	10.6	6.1
1979	42.5	38.6	100.0	25.2	41.6	17.0	10.9	5.2
1981	43.3	39.6	100.0	21.8	43.6	17.0	11.1	6.4
1983	44.1	39.9	100.0	19.3	43.6	17.5	10.6	8.9
1985	45.3	42.5	100.0	15.9	41.0	21.6	14.7	6.8
1987	43.9	41.1	100.0	16.9	43.9	23.3	10.9	5.0
1989	44.9	42.2	100.0	14.2	43.3	23.5	11.2	7.8

Appendix table 5-26

Age distribution of S&E doctorate holders employed in academia, by type of position: 1973–2003

Position	Age (years)		Age distribution (%)					
	Mean	Median	All ages	<35	35–44	45–54	55–64	≥65
1991	46.1	44.0	100.0	11.6	38.2	28.7	14.2	7.3
1993	44.6	43.2	100.0	14.2	37.9	33.9	11.3	2.7
1995	44.8	43.5	100.0	15.0	37.0	31.7	12.4	3.8
1997	45.8	44.7	100.0	13.4	33.9	33.5	15.7	3.4
1999	46.0	45.0	100.0	13.6	33.1	32.4	17.9	3.1
2001	46.8	45.6	100.0	11.5	31.8	32.6	20.2	3.9
2003	46.3	46.0	100.0	13.3	31.7	32.8	19.3	2.8

NOTES: Faculty positions include full, associate, and assistant professors and instructors. Other positions include full-time nonfaculty positions such as research associates, adjunct positions, lecturers, administrative positions, and part-time positions of all kinds. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Appendix table 5-27

Age distribution of S&E doctorate holders in full-time faculty positions at research universities and other academic institutions: 1973–2003

Age and institution type	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
	Thousands															
All universities and colleges.....	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0	187.4	194.1
Research universities.....	55.7	61.5	64.7	67.1	73.8	72.2	80.6	84.2	86.6	85.8	84.4	81.6	81.5	84.1	84.8	89.5
Other universities and colleges.....	47.6	54.9	61.0	64.1	68.2	76.2	76.2	80.2	83.2	87.3	88.1	89.7	96.8	99.9	102.6	104.6
	Percent distribution															
All universities and colleges																
All ages (years).....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<30.....	3.6	2.9	2.3	1.7	1.5	1.1	1.0	0.7	0.5	0.8	1.1	0.7	0.8	0.8	0.9	0.8
30–34.....	22.0	20.1	16.9	14.5	13.2	10.2	9.9	8.5	7.8	8.1	8.3	7.3	7.5	6.5	6.7	8.0
35–39.....	19.9	21.6	23.7	23.3	20.7	18.6	18.2	15.9	15.1	14.9	15.3	14.9	13.1	13.2	12.4	12.7
40–44.....	16.6	16.6	16.4	17.8	20.5	22.6	21.4	20.0	18.6	17.8	17.1	17.0	16.7	16.2	15.6	15.0
45–49.....	13.6	13.8	14.3	14.1	13.8	15.1	17.0	20.1	20.8	19.4	18.4	17.9	17.2	16.8	16.8	16.6
50–54.....	11.0	11.3	11.4	11.8	12.0	12.4	12.0	13.1	14.6	17.4	18.5	18.7	18.5	16.5	17.4	15.7
55–59.....	7.0	7.5	8.4	9.3	9.4	10.3	9.7	10.5	11.1	11.0	10.6	12.4	14.5	16.7	15.5	15.3
60–64.....	4.3	4.6	4.8	5.4	6.3	7.0	7.3	7.6	7.7	7.2	7.5	7.4	7.7	9.0	10.3	11.5
≥65.....	2.0	1.8	1.7	2.0	2.7	2.8	3.5	3.5	3.8	3.4	3.3	3.8	4.0	4.3	4.4	4.4
Research universities																
All ages (years).....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<30.....	3.4	3.0	2.5	2.2	2.1	1.4	1.2	1.0	0.6	0.8	1.2	0.9	0.9	0.7	1.1	1.0
30–34.....	20.6	18.8	16.4	14.9	14.1	11.2	11.4	9.8	9.3	9.1	9.4	7.3	7.0	6.3	6.6	8.0
35–39.....	19.3	20.3	21.0	21.7	19.8	18.0	17.9	16.6	17.1	16.6	16.6	16.4	14.0	13.8	12.2	12.6
40–44.....	16.4	16.3	16.2	17.2	18.8	20.2	20.0	18.7	17.2	17.5	17.6	18.4	17.6	17.3	16.5	15.7
45–49.....	14.3	14.2	14.7	13.9	12.6	14.9	15.4	17.8	18.4	17.8	16.9	16.9	17.3	16.5	16.9	16.6
50–54.....	11.4	12.2	12.3	12.1	12.1	12.1	12.0	12.9	13.8	15.6	16.0	16.5	17.3	15.9	16.3	15.4
55–59.....	7.7	8.3	9.3	10.0	10.4	10.8	9.8	10.3	10.9	10.7	11.0	11.8	13.5	15.2	14.3	14.2
60–64.....	4.8	5.0	5.4	5.8	6.8	8.0	8.2	8.5	8.0	7.7	7.8	7.5	7.8	9.3	10.7	11.2
≥65.....	2.1	1.9	2.2	2.3	3.2	3.5	4.1	4.3	4.8	4.2	3.7	4.2	4.7	4.9	5.3	5.4
Other universities and colleges																
All ages (years).....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<30.....	3.8	2.8	2.1	1.2	0.9	0.8	0.8	0.4	0.4	0.8	0.9	0.6	0.7	0.8	0.8	0.7
30–34.....	23.6	21.4	17.5	14.1	12.2	9.4	8.2	7.1	6.3	7.1	7.3	7.2	7.9	6.7	6.7	8.0
35–39.....	20.7	23.0	26.5	25.1	21.6	19.1	18.5	15.2	13.1	13.1	14.1	13.5	12.5	12.6	12.5	12.8
40–44.....	16.8	17.0	16.6	18.4	22.3	24.9	22.8	21.3	20.1	18.1	16.7	15.7	16.0	15.3	14.8	14.3
45–49.....	12.8	13.3	13.9	14.3	15.0	15.2	18.8	22.5	23.4	20.9	19.9	18.8	17.1	17.0	16.7	16.6
50–54.....	10.5	10.3	10.4	11.6	11.8	12.7	12.0	13.4	15.4	19.2	20.8	20.6	19.5	17.1	18.2	15.9
55–59.....	6.2	6.5	7.5	8.5	8.4	9.8	9.6	10.8	11.2	11.3	10.2	12.9	15.4	17.9	16.5	16.3
60–64.....	3.6	4.2	4.2	5.1	5.8	5.9	6.3	6.6	7.4	6.8	7.1	7.2	7.5	8.7	10.1	11.8
≥65.....	1.8	1.6	1.2	1.7	2.0	2.2	2.9	2.6	2.7	2.7	3.0	3.3	3.5	3.8	3.6	3.5

NOTES: Faculty positions include full, associate, and assistant professors and instructors. Institutions designated by 1994 Carnegie classification code. For information on these institutional categories, see Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education*, Princeton University Press (1994), and chapter 2 sidebar, "Carnegie Classification of Academic Institutions." Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

S&E doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2003

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All positions																
Both sexes, all fields.....	118.0	134.1	145.5	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	258.3
Science.....	105.6	120.7	130.7	139.5	151.0	158.1	170.4	174.8	183.9	187.8	190.6	193.7	205.9	214.7	218.9	230.0
Physical sciences.....	22.1	23.6	25.0	24.6	25.4	25.1	27.0	27.2	27.7	27.7	28.6	29.3	30.2	30.9	30.4	31.5
Mathematics.....	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2	14.9	15.4
Computer sciences.....	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7	3.8	5.2
Earth, atmospheric, and ocean sciences.....	3.4	3.9	4.2	4.2	4.6	4.8	5.2	5.6	5.9	6.0	6.4	6.4	7.3	7.8	8.2	8.8
Life sciences.....	34.9	39.4	42.6	47.0	51.3	54.9	58.7	61.3	64.8	66.9	68.2	71.6	77.3	81.9	84.3	89.2
Psychology.....	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0	30.4	31.3
Social sciences.....	23.4	28.0	31.1	33.6	36.9	38.9	42.0	42.2	44.5	44.8	44.4	42.5	44.9	46.2	46.9	48.6
Engineering.....	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.9	22.8	23.1	23.8	26.6	25.5	26.6	28.3
Male, all fields.....	107.2	120.3	129.0	136.0	144.0	149.8	159.2	162.0	168.0	168.7	166.9	165.1	173.3	175.8	175.0	179.8
Science.....	94.9	106.9	114.3	120.3	128.1	132.0	139.7	141.4	145.8	146.9	144.8	142.9	148.4	152.4	150.7	154.5
Physical sciences.....	20.7	22.1	23.3	22.9	23.5	23.2	24.9	24.9	25.2	25.4	25.7	25.9	26.2	27.0	26.2	27.1
Mathematics.....	9.0	10.3	10.8	11.3	11.3	11.8	12.3	12.5	13.0	13.9	13.7	12.8	13.5	12.9	12.6	12.7
Computer sciences.....	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.6	2.1	2.5	2.6	2.9	2.9	4.3
Earth, atmospheric, and ocean sciences.....	3.3	3.8	4.1	4.0	4.3	4.5	4.9	5.1	5.3	5.4	5.7	5.5	6.2	6.4	6.6	7.0
Life sciences.....	30.8	34.3	36.6	40.1	42.9	44.5	46.7	47.9	49.5	50.1	49.4	50.1	52.6	55.1	54.9	55.9
Psychology.....	10.0	11.8	12.6	13.5	14.9	15.1	16.0	16.2	16.5	16.0	14.7	14.7	15.4	15.6	15.7	15.4
Social sciences.....	21.0	24.7	26.9	28.5	30.9	32.3	34.3	33.9	35.1	34.6	33.4	31.3	31.9	32.4	31.7	32.2
Engineering.....	12.3	13.3	14.7	15.7	15.9	17.8	19.5	20.6	22.2	21.8	22.1	22.3	24.8	23.4	24.3	25.3
Female, all fields.....	10.7	13.8	16.5	19.4	23.1	26.5	31.1	34.0	38.7	41.9	46.9	52.4	59.2	64.4	70.5	78.5
Science.....	10.7	13.8	16.4	19.2	22.9	26.1	30.7	33.5	38.0	40.9	45.8	50.9	57.5	62.3	68.2	75.5
Physical sciences.....	1.3	1.5	1.6	1.7	1.9	1.9	2.1	2.3	2.5	2.3	2.9	3.5	4.0	3.9	4.2	4.5
Mathematics.....	0.6	0.8	0.9	0.9	1.1	1.1	1.3	1.4	1.5	1.4	1.7	1.8	2.1	2.2	2.3	2.7
Computer sciences.....	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.5	0.6	0.7	0.8	0.8	1.0
Earth, atmospheric, and ocean sciences.....	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.9	1.1	1.4	1.6	1.8
Life sciences.....	4.0	5.1	6.0	6.9	8.4	10.3	12.1	13.3	15.3	16.8	18.8	21.5	24.7	26.7	29.4	33.3
Psychology.....	2.2	3.0	3.6	4.3	5.2	5.9	7.1	7.6	8.5	9.2	10.3	11.5	11.9	13.4	14.7	15.9
Social sciences.....	2.4	3.3	4.2	5.2	6.0	6.5	7.7	8.3	9.4	10.2	10.9	11.2	13.0	13.8	15.2	16.4
Engineering.....	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.6	0.7	1.0	1.1	1.5	1.7	2.1	2.3	3.0
Full-time senior faculty																
Both sexes, all fields.....	74.0	84.3	90.7	97.2	107.3	115.6	119.7	127.3	131.0	133.0	128.6	127.3	131.9	136.7	136.9	141.4
Science.....	65.3	74.5	80.0	85.6	94.9	101.8	105.8	112.0	115.2	117.2	113.0	112.1	115.4	120.1	120.2	124.2
Physical sciences.....	13.0	14.6	15.3	16.0	16.8	17.1	17.7	18.3	17.8	17.6	16.9	16.4	16.7	16.6	16.5	17.0
Mathematics.....	5.9	6.9	7.6	8.3	9.1	9.7	10.0	10.5	10.9	11.8	11.5	10.6	10.8	10.8	10.2	10.2
Computer sciences.....	NA	NA	NA	0.0	0.0	0.1	0.1	0.3	0.4	0.9	0.9	1.7	1.7	2.1	2.4	2.9
Earth, atmospheric, and ocean sciences.....	2.2	2.5	2.7	2.8	2.9	3.1	3.1	3.2	3.6	3.6	3.7	3.6	3.8	4.1	4.2	4.3
Life sciences.....	21.0	23.4	24.6	27.0	29.6	32.6	33.7	35.8	36.4	37.4	35.8	37.2	38.3	40.6	41.2	43.1
Psychology.....	7.3	8.7	9.1	9.9	11.7	12.8	13.5	14.3	15.0	15.3	14.3	14.5	15.3	15.6	15.9	15.7
Social sciences.....	15.9	18.5	20.7	21.7	24.9	26.3	27.7	29.5	31.1	30.6	29.9	28.1	28.8	30.1	29.6	31.0
Engineering.....	8.7	9.7	10.7	11.6	12.4	13.7	13.9	15.3	15.9	15.8	15.7	15.3	16.6	16.6	16.8	17.2

S&E doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2003

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Male, all fields.....	69.7	78.9	84.7	90.2	98.7	104.9	107.4	113.2	115.2	115.5	110.3	107.0	109.4	110.6	108.3	109.1
Science.....	61.0	69.2	74.0	78.7	86.4	91.3	93.7	98.2	99.6	100.1	95.0	92.2	93.3	94.8	92.4	93.0
Physical sciences.....	12.5	14.1	14.7	15.4	16.2	16.4	17.0	17.5	16.9	16.9	16.0	15.4	15.6	15.4	15.0	15.3
Mathematics.....	5.6	6.5	7.2	7.9	8.6	9.1	9.3	9.8	10.0	10.8	10.5	9.8	10.0	9.7	9.1	9.1
Computer sciences.....	NA	NA	NA	0.0	0.0	0.1	0.1	0.3	0.4	0.8	0.8	1.4	1.3	1.6	2.0	2.4
Earth, atmospheric, and ocean sciences.....	2.2	2.5	2.7	2.7	2.8	3.0	3.0	3.1	3.4	3.4	3.5	3.4	3.3	3.6	3.6	3.5
Life sciences.....	19.5	21.6	22.7	24.8	26.9	29.1	29.4	31.0	31.0	31.4	29.3	29.3	30.0	31.1	30.4	30.7
Psychology.....	6.4	7.6	7.8	8.4	9.7	10.5	10.8	11.2	11.5	11.3	10.2	10.1	10.7	10.3	10.3	9.4
Social sciences.....	14.7	16.9	18.8	19.5	22.3	23.2	24.1	25.3	26.4	25.5	24.7	22.8	22.4	23.2	21.9	22.6
Engineering.....	8.7	9.7	10.7	11.5	12.2	13.6	13.7	15.1	15.7	15.4	15.3	14.8	16.1	15.8	15.9	16.1
Female, all fields.....	4.3	5.4	6.0	7.0	8.6	10.7	12.4	14.0	15.8	17.6	18.3	20.3	22.5	26.1	28.6	32.3
Science.....	4.3	5.4	6.0	6.9	8.5	10.5	12.2	13.8	15.6	17.1	18.0	19.8	22.0	25.3	27.8	31.2
Physical sciences.....	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.9	0.9	0.7	0.9	1.0	1.1	1.3	1.5	1.7
Mathematics.....	0.3	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.0	0.8	0.8	1.1	1.1	1.2
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.5	0.4	0.5
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.6	0.6	0.8
Life sciences.....	1.5	1.8	1.9	2.2	2.7	3.5	4.3	4.8	5.4	6.1	6.5	7.8	8.3	9.5	10.8	12.4
Psychology.....	0.8	1.1	1.2	1.4	2.0	2.4	2.7	3.1	3.5	4.0	4.1	4.4	4.6	5.4	5.6	6.3
Social sciences.....	1.1	1.5	1.8	2.2	2.6	3.1	3.6	4.1	4.7	5.1	5.2	5.3	6.4	7.0	7.7	8.4
Engineering.....	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.5	0.5	0.8	0.9	1.1
Full-time junior faculty																
Both sexes, all fields.....	29.3	32.1	34.9	34.0	34.6	32.8	37.2	37.2	38.7	40.1	43.8	44.0	46.4	47.4	50.5	52.7
Science.....	26.7	29.6	32.2	31.3	32.3	30.2	33.1	33.2	34.4	35.8	39.3	39.3	41.5	42.9	45.4	47.2
Physical sciences.....	4.8	4.3	4.8	4.0	3.7	3.1	3.5	3.6	3.7	4.1	4.3	4.5	4.8	5.1	5.0	5.5
Mathematics.....	3.3	3.5	3.3	3.1	2.6	2.5	2.7	2.4	2.6	2.4	3.2	2.4	2.8	2.4	2.3	2.8
Computer sciences.....	NA	NA	NA	0.1	0.2	0.3	0.6	0.6	0.9	1.0	1.4	1.2	1.3	1.2	0.9	1.3
Earth, atmospheric, and ocean sciences.....	0.8	0.9	0.9	0.7	0.9	0.9	1.1	1.1	1.1	0.9	0.9	1.1	1.3	1.5	1.7	1.8
Life sciences.....	8.5	9.7	10.3	10.3	11.3	10.8	11.9	12.3	12.8	13.7	15.0	15.6	16.9	17.5	19.2	20.1
Psychology.....	3.6	4.2	4.8	4.4	4.8	4.5	5.0	4.9	5.2	5.4	5.2	5.5	5.5	6.2	6.6	6.1
Social sciences.....	5.7	7.1	8.2	8.6	8.8	8.1	8.4	8.2	7.9	8.4	9.3	9.0	8.9	9.1	9.6	9.5
Engineering.....	2.6	2.5	2.7	2.8	2.3	2.7	4.0	4.0	4.3	4.3	4.5	4.8	5.0	4.5	5.1	5.6
Male, all fields.....	26.0	27.5	28.9	27.3	27.1	25.2	27.8	27.2	27.6	28.1	29.7	28.5	29.5	30.1	31.0	31.4
Science.....	23.5	25.1	26.3	24.6	24.9	22.6	23.9	23.4	23.5	24.2	25.7	24.4	25.1	26.2	26.7	26.8
Physical sciences.....	4.5	4.0	4.4	3.6	3.2	2.7	3.0	3.2	3.2	3.4	3.5	3.4	3.5	4.0	3.9	4.3
Mathematics.....	3.1	3.2	2.9	2.7	2.2	2.2	2.3	2.0	2.2	2.2	2.7	2.0	2.2	1.7	1.7	2.0
Computer sciences.....	NA	NA	NA	0.1	0.2	0.3	0.5	0.5	0.8	0.8	1.1	1.0	1.0	0.9	0.7	1.0
Earth, atmospheric, and ocean sciences.....	0.7	0.9	0.8	0.7	0.9	0.8	0.9	0.9	0.9	0.7	0.7	0.7	1.0	1.1	1.2	1.3
Life sciences.....	7.5	8.1	8.4	8.1	8.9	8.1	8.5	8.5	8.4	8.8	9.5	9.5	9.8	10.4	11.0	11.1
Psychology.....	2.7	3.0	3.3	2.8	3.0	2.6	2.7	2.7	2.9	3.0	2.3	2.4	2.1	2.7	2.7	2.3
Social sciences.....	5.0	5.9	6.5	6.6	6.5	5.9	6.0	5.6	5.2	5.3	5.9	5.5	5.5	5.4	5.5	4.9
Engineering.....	2.6	2.4	2.7	2.7	2.2	2.6	3.8	3.8	4.0	3.9	4.0	4.1	4.4	3.9	4.3	4.6

S&E doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2003

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Female, all fields	3.3	4.6	6.0	6.8	7.5	7.7	9.4	10.0	11.2	12.0	14.1	15.6	17.0	17.3	19.4	21.4
Science	3.3	4.6	5.9	6.7	7.4	7.6	9.2	9.7	10.8	11.6	13.6	14.9	16.4	16.7	18.7	20.3
Physical sciences.....	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.7	0.9	1.1	1.3	1.1	1.1	1.3
Mathematics.....	0.2	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.5	0.5	0.6	0.7	0.6	0.9
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.3
Earth, atmospheric, and ocean sciences....	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.4	0.5	0.5
Life sciences.....	1.1	1.6	1.9	2.2	2.4	2.7	3.4	3.8	4.5	4.9	5.5	6.1	7.1	7.1	8.1	9.0
Psychology	0.9	1.2	1.5	1.6	1.8	1.9	2.3	2.2	2.3	2.4	2.9	3.1	3.4	3.5	3.9	3.8
Social sciences	0.8	1.2	1.7	2.1	2.3	2.1	2.4	2.6	2.7	3.0	3.4	3.5	3.5	3.7	4.1	4.7
Engineering.....	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.7	0.6	0.5	0.8	1.0
All other full-time positions																
Both sexes, all fields.....	7.6	8.3	8.8	11.4	12.6	13.4	18.1	16.4	19.2	20.2	22.2	23.9	26.4	29.3	31.7	35.1
Science	6.8	7.4	8.0	10.5	11.5	12.4	16.6	15.3	17.7	18.4	20.8	21.6	23.3	26.4	28.3	31.6
Physical sciences.....	1.9	1.9	2.1	2.0	2.4	2.5	3.0	2.6	3.3	3.2	3.7	3.8	4.6	5.6	5.5	6.0
Mathematics.....	0.2	0.3	0.4	0.4	0.4	0.3	0.5	0.4	0.5	0.7	0.5	0.6	0.8	0.8	1.0	1.1
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.6
Earth, atmospheric, and ocean sciences....	0.3	0.3	0.3	0.5	0.5	0.5	0.7	0.8	0.7	0.9	1.1	1.1	1.4	1.4	1.6	1.9
Life sciences.....	2.5	2.4	2.8	3.9	4.0	4.6	6.2	6.0	6.7	7.2	7.7	8.4	8.4	9.5	10.5	11.9
Psychology.....	0.8	1.0	1.2	1.8	2.2	2.2	2.9	2.8	2.9	2.8	3.9	3.9	4.0	4.6	4.9	5.6
Social sciences	1.0	1.5	1.2	1.9	2.0	2.2	3.2	2.6	3.5	3.5	3.7	3.6	3.9	4.3	4.5	4.5
Engineering.....	0.8	0.9	0.8	0.9	1.1	1.1	1.5	1.1	1.5	1.8	1.5	2.1	3.1	3.0	3.4	3.6
Male, all fields.....	6.5	7.2	7.4	9.4	10.0	10.3	14.3	12.0	13.9	14.4	15.4	16.1	18.0	20.5	21.4	23.5
Science.....	5.7	6.4	6.6	8.6	8.9	9.3	12.8	10.9	12.5	12.8	13.9	14.2	15.3	17.9	18.3	20.4
Physical sciences.....	1.8	1.8	1.9	1.8	2.1	2.2	2.7	2.2	2.9	2.9	3.3	3.2	4.0	4.9	4.8	5.2
Mathematics.....	0.2	0.3	0.4	0.3	0.3	0.2	0.4	0.4	0.4	0.6	0.4	0.5	0.7	0.7	0.8	0.8
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.6
Earth, atmospheric, and ocean sciences....	0.3	0.3	0.3	0.5	0.5	0.5	0.7	0.7	0.6	0.7	0.9	0.9	1.2	1.1	1.3	1.6
Life sciences.....	2.0	1.9	2.2	3.0	3.0	3.2	4.6	4.1	4.6	4.9	5.1	5.6	5.3	6.2	6.5	7.1
Psychology	0.7	0.8	0.9	1.4	1.4	1.4	1.8	1.6	1.5	1.2	1.9	1.7	1.8	2.1	2.0	2.5
Social sciences	0.8	1.3	0.9	1.6	1.6	1.7	2.5	1.8	2.4	2.4	2.2	2.1	2.2	2.6	2.7	2.7
Engineering.....	0.8	0.9	0.8	0.9	1.1	1.0	1.5	1.0	1.4	1.7	1.5	2.0	2.7	2.6	3.1	3.1
Female, all fields	1.1	1.0	1.4	2.0	2.6	3.1	3.8	4.5	5.3	5.8	6.7	7.7	8.4	8.8	10.4	11.6
Science.....	1.1	1.0	1.4	1.9	2.6	3.0	3.8	4.5	5.2	5.6	6.7	7.5	8.2	8.5	10.0	11.1
Physical sciences.....	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.6	0.7	0.6	0.7	0.8
Mathematics.....	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.3
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Earth, atmospheric, and ocean sciences....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3
Life sciences.....	0.6	0.5	0.6	0.9	1.0	1.3	1.6	1.8	2.1	2.4	2.6	2.8	3.1	3.3	4.0	4.8
Psychology	0.2	0.2	0.3	0.5	0.8	0.8	1.1	1.3	1.4	1.6	2.0	2.2	2.2	2.5	2.9	3.0
Social sciences	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.1	1.1	1.5	1.5	1.7	1.7	1.8	1.7
Engineering.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.5

S&E doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2003

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Postdocs																
Both sexes, all fields.....	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5	17.5	15.8
Science.....	4.0	5.9	7.2	7.8	8.4	8.0	8.5	8.8	10.9	9.4	12.3	15.6	17.2	17.5	16.6	14.6
Physical sciences.....	1.7	2.1	2.2	1.9	1.9	1.4	1.9	2.0	2.4	1.9	3.0	3.9	3.2	2.9	2.6	2.2
Mathematics.....	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6	0.8	0.5
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Earth, atmospheric, and ocean sciences....	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.6	0.5	0.4	0.4
Life sciences.....	1.9	3.0	4.0	4.7	5.2	5.1	5.2	5.6	6.8	6.4	8.2	9.2	10.8	11.7	11.0	10.0
Psychology.....	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.5	0.4	1.1	1.3	1.2	1.2	0.9
Social sciences.....	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.7	0.5	0.6	0.5
Engineering.....	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1	0.9	1.1
Male, all fields.....	3.5	4.9	6.1	6.3	6.3	5.8	6.0	6.8	8.2	6.8	9.2	11.1	12.1	11.2	10.5	9.8
Science.....	3.4	4.7	5.7	6.0	6.1	5.5	5.9	6.3	7.6	6.4	8.3	10.1	10.6	10.3	9.9	8.9
Physical sciences.....	1.5	1.9	1.9	1.7	1.6	1.2	1.6	1.7	2.0	1.5	2.5	3.3	2.5	2.3	2.0	1.8
Mathematics.....	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.3	0.3	0.5	0.6	0.3
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1
Earth, atmospheric, and ocean sciences....	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.4	0.3	0.3
Life sciences.....	1.5	2.2	2.9	3.5	3.6	3.3	3.4	3.8	4.7	4.1	5.2	5.5	6.2	6.6	6.2	5.7
Psychology.....	0.1	0.2	0.4	0.4	0.5	0.3	0.4	0.3	0.3	0.2	0.1	0.4	0.5	0.3	0.4	0.4
Social sciences.....	0.1	0.1	0.2	0.2	0.1	0.4	0.2	0.1	0.2	0.2	0.1	0.2	0.5	0.3	0.3	0.3
Engineering.....	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.5	0.4	0.9	1.0	1.4	0.9	0.7	0.9
Female, all fields.....	0.6	1.3	1.6	1.8	2.2	2.5	2.6	2.6	3.3	3.0	4.1	5.7	6.8	7.3	6.9	6.0
Science.....	0.6	1.3	1.6	1.8	2.2	2.5	2.6	2.6	3.3	3.0	4.0	5.5	6.6	7.1	6.7	5.8
Physical sciences.....	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.6	0.6	0.6	0.6	0.6	0.4
Mathematics.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.2
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Life sciences.....	0.4	0.8	1.1	1.2	1.6	1.8	1.8	1.8	2.2	2.3	3.0	3.7	4.6	5.1	4.7	4.3
Psychology.....	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.3	0.3	0.7	0.8	0.9	0.8	0.5
Social sciences.....	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2
Engineering.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2
Part-time positions																
Both sexes, all fields.....	2.9	3.2	3.4	4.5	4.0	6.0	6.5	5.7	6.2	7.4	5.9	5.5	8.9	8.2	9.0	13.2
Science.....	2.8	3.1	3.2	4.3	3.9	5.7	6.2	5.4	5.6	6.9	5.4	5.1	8.6	7.9	8.5	12.5
Physical sciences.....	0.6	0.6	0.6	0.7	0.6	1.0	0.9	0.6	0.5	0.9	0.7	0.7	1.0	0.7	0.7	0.8
Mathematics.....	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.7	0.7	0.6	0.8
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2
Earth, atmospheric, and ocean sciences....	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.4
Life sciences.....	0.9	0.9	1.0	1.2	1.2	1.7	1.7	1.6	1.9	2.3	1.6	1.2	2.9	2.6	2.4	4.0
Psychology.....	0.4	0.5	0.6	1.0	0.8	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1	1.3	1.8	3.1
Social sciences.....	0.7	0.8	0.8	1.0	1.0	1.6	2.2	1.8	1.7	2.0	1.3	1.3	2.6	2.2	2.7	3.1
Engineering.....	0.1	0.1	0.1	0.3	0.2	0.4	0.3	0.3	0.5	0.5	0.5	0.4	0.3	0.4	0.4	0.8

S&E doctorate holders employed in academia, by type of position, sex, and degree field: 1973–2003

(Thousands)

Position, sex, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Male, all fields.....	1.5	1.8	1.8	2.7	1.9	3.5	3.6	2.7	3.1	3.8	2.3	2.4	4.4	3.4	3.8	6.1
Science.....	1.4	1.7	1.6	2.4	1.7	3.2	3.3	2.5	2.6	3.4	1.9	2.0	4.1	3.2	3.5	5.4
Physical sciences.....	0.4	0.3	0.4	0.5	0.3	0.8	0.6	0.4	0.3	0.6	0.5	0.5	0.7	0.5	0.4	0.5
Mathematics.....	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.4	0.3	0.6
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Earth, atmospheric, and ocean sciences....	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.3
Life sciences.....	0.4	0.5	0.4	0.5	0.4	0.7	0.7	0.5	0.8	1.0	0.4	0.3	1.3	0.8	0.7	1.3
Psychology.....	0.1	0.2	0.2	0.5	0.3	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.3	0.3	0.3	0.8
Social sciences.....	0.4	0.5	0.4	0.6	0.5	1.1	1.4	1.0	0.8	1.2	0.5	0.7	1.4	1.0	1.4	1.7
Engineering.....	0.1	0.1	0.1	0.3	0.2	0.3	0.3	0.3	0.5	0.5	0.4	0.3	0.2	0.2	0.4	0.7
Female, all fields.....	1.4	1.5	1.6	1.9	2.1	2.5	2.9	3.0	3.1	3.5	3.6	3.1	4.5	4.9	5.1	7.2
Science.....	1.4	1.5	1.6	1.9	2.1	2.5	2.9	2.9	3.1	3.5	3.5	3.1	4.4	4.7	5.1	7.1
Physical sciences.....	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.3
Mathematics.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.3	0.3	0.2
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Earth, atmospheric, and ocean sciences....	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
Life sciences.....	0.5	0.5	0.6	0.6	0.7	0.9	1.0	1.1	1.1	1.3	1.2	0.9	1.6	1.8	1.7	2.7
Psychology.....	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.7	0.7	0.9	1.1	1.0	0.8	1.0	1.5	2.3
Social sciences.....	0.3	0.3	0.3	0.4	0.5	0.5	0.9	0.8	0.8	0.8	0.8	0.7	1.2	1.2	1.3	1.4
Engineering.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1

NA = not available

NOTES: Faculty defined by position: professors and associate professors are senior faculty; assistant professors and instructors are junior faculty; other full-time positions include nonfaculty positions such as research associates, adjunct positions, lecturers, and administrative positions. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

S&E doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2003

(Thousands)

Position, field, and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All positions	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	258.3
Science	105.6	120.6	130.7	139.5	150.9	157.9	170.3	174.7	183.8	187.8	190.6	193.7	205.9	214.7	218.9	230.0
Physical sciences	22.1	23.6	25.0	24.6	25.3	25.1	27.0	27.2	27.7	27.7	28.6	29.4	30.2	30.9	30.4	31.5
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2	14.9	15.4
Computer sciences.....	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7	3.8	5.2
Earth, atmospheric, and ocean sciences.....	3.4	3.9	4.2	4.2	4.6	4.8	5.2	5.6	5.9	6.1	6.4	6.4	7.3	7.8	8.2	8.8
Life sciences	34.9	39.4	42.6	47.0	51.3	54.8	58.7	61.2	64.8	66.9	68.2	71.6	77.3	81.9	84.3	89.2
Psychology.....	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0	30.4	31.3
Social sciences.....	23.4	28.0	31.1	33.6	36.9	38.8	41.9	42.1	44.5	44.8	44.4	42.5	44.9	46.2	46.9	48.6
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.8	22.8	23.1	23.8	26.6	25.5	26.6	28.3
White.....	107.7	121.6	131.4	140.0	149.9	157.2	168.4	172.8	181.0	183.5	181.8	182.6	193.2	198.2	201.0	203.3
Science	96.9	109.9	118.8	126.5	135.9	142.0	152.0	155.7	163.0	165.3	164.3	165.0	173.0	178.8	180.8	183.7
Physical sciences.....	19.7	21.1	22.1	21.9	22.3	21.9	23.4	23.3	23.7	23.8	23.4	23.8	24.4	25.3	24.7	24.8
Mathematics	8.8	10.0	10.6	10.8	11.0	11.5	11.9	12.2	12.6	13.0	12.9	12.0	12.6	12.3	12.1	11.9
Computer sciences.....	NA	NA	NA	0.1	0.2	0.4	0.6	0.9	1.1	1.4	1.6	2.1	2.2	2.7	2.7	3.4
Earth, atmospheric, and ocean sciences.....	3.3	3.7	4.0	4.0	4.3	4.5	4.9	5.2	5.5	5.7	5.9	5.7	6.6	7.0	7.3	7.6
Life sciences.....	32.1	35.8	38.8	42.4	46.1	49.3	52.7	54.6	57.6	59.2	59.1	61.3	64.9	67.2	68.4	69.8
Psychology.....	11.6	13.9	15.2	16.8	18.8	19.6	21.3	22.0	23.2	23.2	22.9	23.6	24.4	25.5	26.6	26.6
Social sciences	21.4	25.3	28.2	30.5	33.1	34.7	37.2	37.5	39.4	39.1	38.6	36.5	38.0	38.9	39.0	39.5
Engineering.....	10.8	11.6	12.6	13.5	14.0	15.2	16.4	17.2	18.1	18.2	17.5	17.6	20.2	19.4	20.2	19.7
Asian/Pacific Islander.....	5.0	6.1	6.7	9.8	10.8	11.8	14.0	15.0	16.3	16.8	20.9	22.4	25.4	26.3	27.6	34.5
Science	4.0	5.0	5.4	7.8	9.1	9.4	11.1	11.5	12.2	13.1	16.2	17.5	20.3	21.7	22.8	28.1
Physical sciences.....	1.1	1.3	1.4	1.8	2.0	2.2	2.6	2.9	2.8	2.6	3.8	4.1	4.1	4.0	3.9	4.7
Mathematics	0.4	0.5	0.5	0.9	0.9	1.0	1.1	1.1	1.3	1.6	1.9	1.8	2.2	2.1	2.0	2.7
Computer sciences.....	NA	NA	NA	0.0	0.1	0.1	0.1	0.1	0.3	0.5	0.7	0.9	0.9	0.9	0.9	1.5
Earth, atmospheric, and ocean sciences.....	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.4	0.5	0.5	0.6	0.6	0.9
Life sciences.....	1.3	1.8	2.0	3.1	3.6	3.6	4.0	4.4	4.7	5.1	6.3	6.8	8.5	9.9	11.0	13.1
Psychology.....	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.9	1.1
Social sciences	1.0	1.1	1.2	1.6	2.0	2.0	2.5	2.2	2.4	2.6	2.7	2.8	3.2	3.5	3.6	4.1
Engineering.....	1.1	1.1	1.3	1.9	1.8	2.4	3.0	3.5	4.1	3.7	4.7	4.9	5.2	4.6	4.8	6.4
Underrepresented minority	2.4	3.2	3.7	4.9	5.8	6.5	7.2	7.8	9.0	9.9	10.7	12.4	13.7	15.6	16.8	20.3
Science	2.2	2.9	3.4	4.5	5.5	6.0	6.7	7.2	8.3	9.0	9.8	11.2	12.6	14.1	15.2	18.2
Physical sciences.....	0.5	0.5	0.5	0.7	0.9	0.9	0.9	1.0	1.1	1.2	1.4	1.4	1.7	1.6	1.7	2.0
Mathematics	0.2	0.2	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.7	0.8	0.7	0.8	0.8	0.9
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3
Life sciences.....	0.8	1.1	1.2	1.3	1.5	1.7	1.8	2.1	2.4	2.6	2.7	3.5	3.9	4.7	4.9	6.2
Psychology.....	0.3	0.4	0.6	0.5	0.8	1.0	1.2	1.2	1.3	1.5	1.6	2.0	2.3	2.7	2.9	3.6
Social sciences	0.5	0.8	0.8	1.5	1.8	2.0	2.1	2.3	2.8	3.0	3.1	3.2	3.6	3.9	4.3	4.9
Engineering.....	0.2	0.2	0.3	0.4	0.3	0.5	0.5	0.5	0.7	0.9	0.9	1.2	1.2	1.5	1.6	2.2

S&E doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2003

(Thousands)

Position, field, and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Black.....	1.3	1.7	1.7	1.9	2.6	3.1	3.3	3.5	3.8	4.6	4.8	5.8	6.6	7.3	8.2	9.7
Science.....	1.2	1.6	1.7	1.9	2.5	2.9	3.2	3.3	3.5	4.2	4.5	5.4	6.1	6.6	7.4	8.6
Physical sciences.....	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.5	0.5	0.7	0.6	0.8	0.8
Mathematics.....	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Life sciences.....	0.4	0.6	0.6	0.6	0.6	0.8	0.9	0.9	1.0	1.2	1.3	1.7	1.9	2.1	2.2	2.7
Psychology.....	0.2	0.2	0.3	0.3	0.4	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.2	1.4	1.6	1.8
Social sciences.....	0.3	0.5	0.5	0.7	1.0	1.1	1.3	1.2	1.2	1.6	1.6	1.7	2.0	2.0	2.3	2.7
Engineering.....	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.4	0.3	0.5	0.5	0.7	0.7	1.1
Hispanic.....	0.9	1.2	1.6	2.4	2.5	2.6	3.1	3.4	4.3	4.5	5.0	5.7	6.2	7.3	7.8	8.8
Science.....	0.8	1.1	1.4	2.1	2.4	2.4	2.8	3.1	3.9	4.1	4.4	5.0	5.6	6.6	7.0	7.9
Physical sciences.....	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.8	0.8	0.8	0.9	0.8	0.8	1.0
Mathematics.....	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.4
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Life sciences.....	0.4	0.4	0.5	0.7	0.8	0.8	0.8	1.0	1.2	1.2	1.3	1.6	1.8	2.3	2.5	2.8
Psychology.....	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.8	1.0	1.1	1.2	1.5
Social sciences.....	0.1	0.2	0.2	0.6	0.5	0.6	0.7	0.8	1.1	1.1	1.2	1.1	1.3	1.6	1.7	1.8
Engineering.....	0.1	0.1	0.2	0.3	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.7	0.6	0.7	0.8	0.9
American Indian/Alaska Native.....	0.2	0.3	0.4	0.6	0.7	0.7	0.8	0.8	1.0	0.8	0.9	0.9	0.9	1.0	0.9	1.8
Science.....	0.2	0.3	0.3	0.6	0.7	0.7	0.7	0.8	0.9	0.8	0.9	0.8	0.8	0.9	0.8	1.7
Physical sciences.....	0.0	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.2
Mathematics.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Life sciences.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.6
Psychology.....	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
Social sciences.....	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.5	0.3	0.4	0.3	0.3	0.3	0.3	0.4
Engineering.....	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Full-time faculty.....	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0	187.4	194.1
Science.....	92.0	104.2	112.2	116.9	127.2	132.0	139.0	145.1	149.5	153.1	152.2	151.3	156.8	163.0	165.5	171.3
Physical sciences.....	17.8	18.9	20.0	20.0	20.5	20.2	21.2	22.0	21.5	21.7	21.3	20.9	21.4	21.7	21.6	22.5
Mathematics.....	9.3	10.4	10.9	11.4	11.7	12.3	12.7	12.9	13.5	14.2	14.7	13.0	13.6	13.1	12.6	13.0
Computer sciences.....	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.8	2.3	2.8	3.0	3.3	3.3	4.2
Earth, atmospheric, and ocean sciences.....	3.0	3.4	3.6	3.5	3.8	4.0	4.2	4.4	4.7	4.5	4.5	4.7	5.1	5.6	5.9	6.1
Life sciences.....	29.5	33.1	34.9	37.3	40.9	43.5	45.6	48.1	49.3	51.1	50.8	52.8	55.2	58.1	60.4	63.2
Psychology.....	10.8	12.8	13.9	14.3	16.4	17.3	18.5	19.2	20.2	20.7	19.5	20.1	20.8	21.9	22.6	21.7
Social sciences.....	21.6	25.5	28.8	30.3	33.7	34.4	36.1	37.6	39.0	39.0	39.2	37.1	37.7	39.2	39.2	40.5
Engineering.....	11.3	12.2	13.5	14.3	14.7	16.4	17.9	19.3	20.2	20.1	20.1	20.0	21.5	21.1	21.9	22.8

S&E doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2003

(Thousands)

Position, field, and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
White.....	94.9	106.2	114.3	118.7	128.1	133.4	139.7	146.2	149.8	151.8	148.7	147.1	151.1	155.4	156.3	155.9
Science.....	84.9	95.6	102.6	106.5	115.4	119.4	124.9	130.3	133.6	135.7	133.1	131.7	134.5	139.3	139.8	139.9
Physical sciences.....	16.1	17.2	18.0	18.0	18.5	17.8	18.8	19.3	18.9	18.9	18.0	17.8	17.9	18.3	17.9	18.3
Mathematics.....	8.5	9.5	9.9	10.1	10.3	10.9	11.1	11.4	11.7	12.2	12.3	10.7	11.0	10.7	10.1	10.1
Computer sciences.....	NA	NA	NA	0.0	0.2	0.3	0.5	0.7	1.0	1.3	1.5	1.9	2.0	2.4	2.3	2.6
Earth, atmospheric, and ocean sciences.....	2.9	3.3	3.5	3.3	3.6	3.8	4.0	4.1	4.4	4.3	4.2	4.3	4.7	5.1	5.3	5.4
Life sciences.....	27.5	30.4	32.1	33.9	37.2	39.7	41.3	43.3	44.4	46.0	45.1	46.7	48.3	50.2	51.4	51.5
Psychology.....	10.3	12.1	13.0	13.6	15.4	16.2	17.1	17.9	18.8	19.2	18.0	18.4	18.8	19.6	20.1	18.8
Social sciences.....	19.7	23.2	26.1	27.5	30.1	30.7	32.2	33.5	34.4	33.8	34.1	31.9	31.8	33.0	32.8	33.3
Engineering.....	10.0	10.6	11.6	12.2	12.7	14.0	14.8	15.9	16.2	16.2	15.6	15.3	16.7	16.1	16.5	16.0
Asian/Pacific Islander.....	4.0	4.7	5.0	7.8	8.4	9.1	10.9	11.7	12.3	12.6	14.8	14.5	16.5	17.0	18.4	22.9
Science.....	3.0	3.7	3.9	6.0	6.7	7.2	8.2	8.7	8.9	9.5	11.1	10.9	12.7	13.2	14.4	18.0
Physical sciences.....	0.7	0.8	0.9	1.3	1.2	1.5	1.6	1.8	1.7	1.7	2.2	2.0	2.2	2.2	2.3	2.7
Mathematics.....	0.4	0.5	0.5	0.8	0.9	1.0	1.1	1.1	1.3	1.5	1.7	1.6	2.0	1.7	1.7	2.2
Computer sciences.....	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.3	0.5	0.7	0.8	0.8	0.8	0.8	1.4
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.3	0.3	0.5
Life sciences.....	0.9	1.2	1.2	2.1	2.3	2.4	2.8	3.1	3.0	3.0	3.7	3.5	4.1	4.9	5.7	7.2
Psychology.....	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.7
Social sciences.....	0.9	1.1	1.1	1.5	1.9	1.9	2.1	2.1	2.1	2.4	2.3	2.4	2.8	2.9	3.1	3.3
Engineering.....	0.9	1.0	1.1	1.8	1.7	1.9	2.7	3.0	3.4	3.1	3.7	3.6	3.8	3.8	4.0	4.9
Underrepresented minority.....	2.0	2.7	3.2	4.2	5.0	5.4	5.8	6.3	7.4	8.4	8.6	9.8	10.6	11.6	12.5	15.2
Science.....	1.9	2.5	2.9	3.9	4.8	5.0	5.4	5.9	6.8	7.6	7.8	8.7	9.6	10.4	11.2	13.4
Physical sciences.....	0.4	0.4	0.4	0.6	0.8	0.8	0.7	0.8	0.8	1.0	1.1	1.0	1.3	1.3	1.4	1.5
Mathematics.....	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.6	0.7	0.7	0.8
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Life sciences.....	0.7	0.9	1.0	1.1	1.3	1.3	1.4	1.6	1.8	2.0	2.0	2.6	2.7	3.1	3.3	4.5
Psychology.....	0.2	0.3	0.5	0.4	0.6	0.7	0.9	0.9	1.0	1.1	1.1	1.3	1.5	1.8	2.0	2.2
Social sciences.....	0.4	0.6	0.8	1.4	1.6	1.7	1.8	2.0	2.5	2.8	2.8	2.8	3.1	3.3	3.4	4.0
Engineering.....	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.8	0.8	1.1	1.0	1.1	1.4	1.8
Black.....	1.1	1.4	1.5	1.7	2.3	2.5	2.7	2.8	3.2	4.0	3.8	4.6	5.0	5.5	5.9	7.3
Science.....	1.1	1.3	1.5	1.6	2.1	2.3	2.6	2.6	3.0	3.6	3.5	4.2	4.5	4.9	5.2	6.3
Physical sciences.....	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.3	0.3	0.4	0.6	0.5	0.6	0.6
Mathematics.....	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Life sciences.....	0.3	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.8	1.0	1.0	1.3	1.3	1.4	1.4	2.0
Psychology.....	0.1	0.2	0.3	0.2	0.4	0.4	0.5	0.5	0.6	0.7	0.6	0.6	0.7	1.0	1.1	1.1
Social sciences.....	0.3	0.4	0.4	0.6	0.9	0.9	1.1	1.0	1.1	1.5	1.4	1.5	1.7	1.7	1.7	2.2
Engineering.....	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.5	0.4	0.6	0.7	1.0

S&E doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2003

(Thousands)

Position, field, and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Hispanic.....	0.7	1.0	1.3	2.0	2.1	2.2	2.4	2.7	3.3	3.7	3.9	4.4	4.8	5.2	5.9	6.4
Science.....	0.6	0.9	1.2	1.7	2.0	2.0	2.2	2.5	3.0	3.3	3.5	3.8	4.3	4.7	5.3	5.6
Physical sciences.....	0.1	0.2	0.2	0.3	0.4	0.4	0.4	0.5	0.4	0.6	0.6	0.5	0.7	0.7	0.7	0.8
Mathematics.....	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.5	0.5	0.4
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Earth, atmospheric, and ocean sciences...	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Life sciences.....	0.3	0.4	0.4	0.5	0.7	0.6	0.6	0.8	0.9	0.9	0.9	1.2	1.3	1.5	1.7	2.0
Psychology.....	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.5	0.7	0.7	0.8	0.9
Social sciences.....	0.1	0.2	0.2	0.5	0.5	0.5	0.5	0.7	0.9	1.0	1.0	1.0	1.1	1.3	1.4	1.3
Engineering.....	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.6	0.5	0.5	0.6	0.7
American Indian/Alaska Native.....	0.2	0.3	0.4	0.6	0.6	0.7	0.7	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.7	1.5
Science.....	0.2	0.3	0.3	0.6	0.6	0.6	0.6	0.7	0.8	0.7	0.8	0.7	0.7	0.7	0.7	1.4
Physical sciences.....	0.0	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mathematics.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Life sciences.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.5
Psychology.....	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
Social sciences.....	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.4
Engineering.....	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Postdocs.....	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5	17.5	15.8
Science.....	4.0	5.9	7.2	7.8	8.4	8.0	8.5	8.8	10.9	9.4	12.3	15.6	17.2	17.5	16.6	14.6
Physical sciences.....	1.7	2.1	2.2	1.9	1.9	1.4	1.9	2.0	2.4	1.9	3.0	3.9	3.2	2.9	2.6	2.2
Mathematics.....	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6	0.8	0.5
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Earth, atmospheric, and ocean sciences.....	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.6	0.5	0.4	0.4
Life sciences.....	1.9	3.0	4.0	4.7	5.2	5.1	5.2	5.6	6.8	6.4	8.2	9.2	10.8	11.7	11.0	10.0
Psychology.....	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.5	0.4	1.1	1.3	1.2	1.2	0.9
Social sciences.....	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.7	0.5	0.6	0.5
Engineering.....	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1	0.9	1.1
White.....	3.6	5.0	6.2	6.8	6.9	6.8	7.1	7.4	9.0	7.1	9.1	11.2	12.5	11.9	11.4	9.9
Science.....	3.4	4.8	6.0	6.7	6.7	6.8	7.0	7.2	8.7	6.9	8.8	10.7	11.6	11.2	10.9	9.3
Physical sciences.....	1.4	1.7	1.7	1.5	1.3	1.2	1.3	1.3	1.6	1.2	2.0	2.3	2.0	1.8	1.8	1.3
Mathematics.....	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.3	0.3	0.5	0.7	0.4
Computer sciences.....	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Earth, atmospheric, and ocean sciences.....	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.5	0.5	0.4	0.3
Life sciences.....	1.7	2.4	3.3	4.1	4.4	4.3	4.5	4.7	5.6	4.8	5.9	6.5	7.0	7.2	6.7	6.4
Psychology.....	0.1	0.4	0.4	0.6	0.6	0.5	0.7	0.6	0.8	0.4	0.3	0.9	1.1	0.9	1.0	0.7
Social sciences.....	0.1	0.2	0.3	0.3	0.3	0.5	0.3	0.1	0.3	0.2	0.1	0.3	0.6	0.3	0.4	0.3
Engineering.....	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.5	0.9	0.7	0.6	0.5

S&E doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2003

(Thousands)

Position, field, and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Asian/Pacific Islander	0.5	1.0	1.1	1.1	1.4	1.1	1.1	1.6	1.9	2.3	3.6	4.7	5.3	5.2	4.9	4.8
Science	0.4	0.9	1.0	1.0	1.4	0.9	1.1	1.3	1.6	2.0	2.9	4.0	4.7	4.9	4.6	4.3
Physical sciences.....	0.2	0.4	0.4	0.4	0.6	0.2	0.5	0.6	0.7	0.6	0.9	1.4	1.1	1.1	0.8	0.8
Mathematics.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1
Life sciences.....	0.2	0.5	0.5	0.5	0.8	0.6	0.6	0.6	0.9	1.3	1.9	2.2	3.2	3.6	3.6	3.0
Psychology.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Engineering.....	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.3	0.7	0.7	0.7	0.2	0.3	0.5
Underrepresented minority	0.1	0.1	0.2	0.2	0.2	0.4	0.4	0.4	0.6	0.4	0.6	0.9	1.1	1.5	1.1	1.1
Science	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.3	0.5	0.4	0.6	0.9	1.0	1.4	1.1	1.0
Physical sciences.....	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1
Mathematics.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences.....	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.4	0.5	0.6	0.8	0.6	0.6
Psychology.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.2	0.1	0.1
Social sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1
Engineering.....	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1
Black.....	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.5	0.5	0.4
Science.....	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.5	0.5	0.4
Physical sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mathematics.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences.....	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.3	0.2	0.2
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Social sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
Engineering.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Hispanic.....	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.4	0.6	0.5	0.9	0.6	0.6
Science.....	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.3	0.4	0.6	0.5	0.8	0.6	0.6
Physical sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1
Mathematics.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences.....	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.5	0.4	0.4
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Engineering.....	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0

S&E doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2003

(Thousands)

Position, field, and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
American Indian/Alaska Native	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Science	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Physical sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mathematics.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Engineering.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Full-time nonfaculty and part-time positions	10.5	11.5	12.2	15.9	16.6	19.4	24.6	22.1	25.4	27.6	28.1	29.4	35.3	37.5	40.7	48.4
Science	9.6	10.5	11.3	14.8	15.3	18.0	22.8	20.7	23.3	25.4	26.0	26.8	31.9	34.2	36.8	44.0
Physical sciences.....	2.6	2.5	2.7	2.7	3.0	3.5	3.9	3.3	3.8	4.2	4.4	4.5	5.6	6.3	6.2	6.7
Mathematics.....	0.4	0.6	0.7	0.7	0.6	0.5	0.7	0.6	0.8	0.9	0.8	1.1	1.5	1.5	1.6	1.9
Computer sciences.....	NA	NA	NA	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.9
Earth, atmospheric, and ocean sciences.....	0.3	0.4	0.4	0.6	0.6	0.7	0.9	0.9	0.9	1.2	1.4	1.3	1.6	1.7	1.9	2.3
Life sciences.....	3.4	3.3	3.7	5.0	5.2	6.3	7.8	7.6	8.7	9.5	9.2	9.6	11.3	12.0	12.9	15.9
Psychology.....	1.2	1.5	1.8	2.8	3.0	3.1	3.9	3.8	4.0	4.0	5.1	5.0	5.2	5.9	6.6	8.7
Social sciences	1.6	2.2	1.9	2.9	2.9	3.8	5.5	4.3	5.1	5.5	5.0	5.0	6.5	6.5	7.1	7.6
Engineering.....	0.9	1.0	0.9	1.2	1.3	1.4	1.8	1.4	2.0	2.2	2.0	2.5	3.4	3.3	3.9	4.4
White.....	9.3	10.4	10.9	14.5	15.0	17.0	21.6	19.3	22.2	24.6	24.0	24.3	29.6	31.0	33.3	37.6
Science	8.6	9.5	10.1	13.4	13.7	15.8	20.0	18.2	20.6	22.8	22.4	22.5	27.0	28.3	30.1	34.4
Physical sciences.....	2.2	2.3	2.4	2.5	2.6	3.0	3.3	2.7	3.2	3.6	3.5	3.7	4.4	5.2	5.1	5.2
Mathematics.....	0.3	0.5	0.6	0.6	0.6	0.5	0.7	0.6	0.7	0.8	0.6	0.9	1.2	1.1	1.3	1.5
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.7
Earth, atmospheric, and ocean sciences.....	0.3	0.4	0.4	0.6	0.6	0.6	0.8	0.9	0.8	1.2	1.3	1.1	1.5	1.4	1.7	1.9
Life sciences.....	3.0	2.9	3.3	4.4	4.5	5.3	6.9	6.6	7.5	8.4	8.1	8.1	9.5	9.8	10.2	12.0
Psychology.....	1.1	1.5	1.7	2.6	2.8	2.9	3.5	3.5	3.6	3.6	4.5	4.3	4.5	5.0	5.6	7.2
Social sciences	1.5	2.0	1.7	2.7	2.7	3.5	4.7	3.9	4.7	5.1	4.4	4.3	5.6	5.5	5.9	5.9
Engineering.....	0.7	0.9	0.8	1.1	1.2	1.1	1.6	1.1	1.6	1.8	1.6	1.8	2.7	2.6	3.1	3.1
Asian/Pacific Islander	0.6	0.4	0.6	0.9	1.0	1.6	2.0	1.8	2.0	1.9	2.5	3.2	3.6	4.1	4.3	6.7
Science	0.5	0.4	0.5	0.9	1.0	1.4	1.8	1.5	1.7	1.5	2.2	2.6	2.9	3.5	3.7	5.8
Physical sciences.....	0.2	0.1	0.1	0.2	0.2	0.5	0.5	0.5	0.5	0.4	0.7	0.7	0.9	0.8	0.8	1.1
Mathematics.....	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.4
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1
Earth, atmospheric, and ocean sciences.....	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3
Life sciences.....	0.2	0.1	0.3	0.4	0.6	0.7	0.7	0.7	0.9	0.8	0.8	1.1	1.2	1.5	1.7	2.9
Psychology.....	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3
Social sciences	0.0	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.8
Engineering.....	0.1	0.0	0.1	0.1	0.0	0.2	0.2	0.3	0.4	0.3	0.3	0.6	0.6	0.6	0.5	0.9

S&E doctorate holders employed in academia, by type of position, degree field, and race/ethnicity: 1973–2003

(Thousands)

Position, field, and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Underrepresented minority	0.3	0.4	0.3	0.5	0.5	0.8	1.0	1.1	1.1	1.1	1.5	1.8	2.1	2.5	3.1	4.1
Science	0.3	0.4	0.3	0.4	0.5	0.7	0.9	1.0	1.0	1.0	1.4	1.7	2.0	2.4	2.9	3.8
Physical sciences	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.4
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Life sciences	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.6	0.8	1.0	1.1
Psychology	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.6	0.6	0.7	0.8	1.2
Social sciences	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.5	0.8	0.9
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3
Black	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.6	0.4	0.5	0.7	0.9	1.2	1.2	1.8	2.0
Science	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.6	0.4	0.5	0.7	0.9	1.1	1.2	1.7	1.9
Physical sciences	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.3	0.4	0.5	0.5
Psychology	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.4	0.4	0.3	0.5	0.6
Social sciences	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.5	0.4
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Hispanic	0.1	0.1	0.2	0.2	0.3	0.3	0.5	0.5	0.6	0.5	0.7	0.7	0.8	1.2	1.2	1.8
Science	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.8	1.1	1.1	1.7
Physical sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.3	0.3	0.4	0.5
Psychology	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.6
Social sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1
American Indian/Alaska Native	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
Science	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Physical sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, and ocean sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NA = not available

NOTES: Faculty defined by position: professors and associate professors are senior faculty; assistant professors and instructors are junior faculty; other full-time positions include nonfaculty positions such as research associates, adjunct positions, lecturers, and administrative positions. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

S&E doctorate holders employed at academic institutions, by type of position, degree field, and place of birth: 1973–2003

Position, field, and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All positions																
All fields	118,100	134,100	145,400	155,300	167,100	176,100	190,200	195,900	206,600	210,600	213,800	217,500	232,500	240,200	245,500	258,300
United States.....	102,500	116,800	127,200	132,500	142,400	149,200	159,500	164,300	171,800	174,100	173,300	175,800	186,000	191,200	194,100	197,900
Foreign.....	13,600	15,300	16,400	21,700	23,600	25,700	29,700	30,800	34,000	36,300	40,500	41,800	46,500	49,000	51,500	60,400
Foreign (%).....	11.0	12.0	11.0	14.0	14.0	15.0	16.0	16.0	17.0	17.0	19.0	19.0	20.0	20.0	21.0	23.0
Physical sciences	22,100	23,600	25,000	24,600	25,300	25,100	27,000	27,200	27,700	27,700	28,600	29,400	30,200	30,900	30,400	31,500
United States.....	18,700	20,200	21,300	20,600	21,200	21,000	22,200	22,000	22,300	22,400	22,000	22,800	23,300	24,000	23,400	23,600
Foreign.....	2,900	3,000	3,200	3,800	4,000	4,000	4,700	5,000	5,300	5,300	6,600	6,500	6,900	7,000	7,000	7,900
Foreign (%)	13.0	13.0	13.0	16.0	16.0	16.0	17.0	18.0	19.0	19.0	23.0	22.0	23.0	23.0	23.0	25.0
Mathematics	9,700	11,000	11,700	12,200	12,400	12,900	13,600	13,800	14,500	15,200	15,500	14,600	15,600	15,200	14,900	15,400
United States.....	8,400	9,600	10,300	10,200	10,200	10,500	10,900	11,200	11,300	11,600	11,500	10,900	11,300	11,000	10,700	10,300
Foreign.....	1,100	1,300	1,200	1,900	2,000	2,300	2,600	2,600	3,100	3,600	4,000	3,700	4,200	4,200	4,200	5,100
Foreign (%)	11.0	11.0	10.0	15.0	16.0	18.0	19.0	19.0	21.0	24.0	26.0	26.0	27.0	28.0	28.0	33.0
Computer sciences	NA	NA	NA	100	300	500	800	1,100	1,500	2,000	2,500	3,100	3,300	3,700	3,800	5,200
United States.....	NA	NA	NA	—	200	300	500	800	900	1,100	1,500	1,800	1,900	2,300	2,300	2,900
Foreign.....	NA	NA	NA	—	100	100	300	300	600	900	1,100	1,300	1,400	1,400	1,500	2,300
Foreign (%)	NA	NA	NA	—	30.0	30.0	32.0	29.0	38.0	44.0	42.0	42.0	44.0	37.0	39.0	44.0
Earth, atmospheric, and ocean sciences	3,400	3,900	4,200	4,200	4,600	4,800	5,200	5,600	5,900	6,100	6,400	6,400	7,300	7,800	8,200	8,800
United States.....	3,100	3,500	3,700	3,700	4,000	4,200	4,500	4,900	5,000	5,300	5,400	5,300	5,900	6,600	6,800	7,000
Foreign.....	300	400	400	500	500	600	700	700	800	800	1,000	1,100	1,400	1,200	1,400	1,800
Foreign (%)	8.0	10.0	11.0	11.0	12.0	13.0	14.0	12.0	14.0	13.0	16.0	17.0	19.0	16.0	17.0	20.0
Life sciences	34,900	39,400	42,600	47,000	51,300	54,800	58,700	61,200	64,800	66,900	68,200	71,600	77,300	81,900	84,300	89,200
United States.....	30,900	34,800	37,800	40,700	44,400	47,700	51,000	53,100	56,000	57,800	57,800	60,500	64,000	66,400	67,400	69,700
Foreign.....	3,300	3,900	4,300	5,900	6,500	6,600	7,300	7,800	8,400	9,100	10,400	11,100	13,300	15,500	16,800	19,500
Foreign (%)	9.0	10.0	10.0	13.0	13.0	12.0	12.0	13.0	13.0	14.0	15.0	16.0	17.0	19.0	20.0	22.0
Psychology	12,200	14,800	16,200	17,700	20,100	21,000	23,100	23,700	25,000	25,200	25,000	26,100	27,300	29,000	30,400	31,300
United States.....	11,300	13,700	15,100	16,500	18,600	19,500	21,300	22,100	23,200	23,400	23,200	24,400	25,200	26,800	28,000	28,500
Foreign.....	800	900	900	1,100	1,500	1,400	1,700	1,600	1,700	1,700	1,700	1,800	2,100	2,200	2,400	2,800
Foreign (%)	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0	8.0	8.0	9.0
Social sciences	23,400	28,000	31,100	33,600	36,900	38,800	41,900	42,100	44,500	44,800	44,400	42,500	44,900	46,200	46,900	48,600
United States.....	20,100	24,100	27,100	28,600	31,300	32,800	35,200	35,900	37,700	37,500	37,100	35,300	36,800	37,500	38,100	38,800
Foreign.....	2,900	3,500	3,700	4,700	5,400	5,800	6,600	6,100	6,700	7,200	7,300	7,200	8,100	8,700	8,800	9,700
Foreign (%)	13.0	12.0	12.0	14.0	15.0	15.0	16.0	15.0	15.0	16.0	17.0	17.0	18.0	19.0	19.0	20.0
Engineering	12,400	13,400	14,800	15,800	16,100	18,100	19,900	21,200	22,800	22,800	23,100	23,800	26,600	25,500	26,600	28,300
United States.....	10,000	11,000	11,900	12,100	12,500	13,200	13,900	14,400	15,300	15,100	14,800	14,800	17,500	16,700	17,200	17,000
Foreign.....	2,300	2,300	2,700	3,700	3,600	4,900	6,000	6,700	7,500	7,700	8,400	9,000	9,100	8,800	9,400	11,300
Foreign (%)	19.0	17.0	18.0	23.0	23.0	27.0	30.0	32.0	33.0	34.0	36.0	38.0	34.0	35.0	35.0	40.0

S&E doctorate holders employed at academic institutions, by type of position, degree field, and place of birth: 1973–2003

Position, field, and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Full-time senior faculty																
All fields	74,000	84,300	90,700	97,200	107,300	115,600	119,700	127,300	131,000	133,000	128,600	127,300	131,900	136,700	136,900	141,400
United States.....	64,200	73,100	79,300	83,000	91,500	98,400	101,300	108,300	110,900	113,500	108,400	107,400	109,900	113,200	112,400	113,500
Foreign.....	8,100	9,600	9,900	13,300	14,900	16,300	17,900	18,500	19,600	19,500	20,200	19,900	22,000	23,400	24,500	27,900
Foreign (%)	11.0	12.0	11.0	14.0	14.0	14.0	15.0	15.0	15.0	15.0	16.0	16.0	17.0	17.0	18.0	20.0
Physical sciences.....	13,000	14,600	15,300	16,000	16,800	17,100	17,700	18,300	17,800	17,600	16,900	16,400	16,700	16,600	16,500	17,000
United States	11,100	12,500	13,000	13,600	14,300	14,400	14,900	15,300	14,800	14,900	14,100	13,900	14,000	13,900	13,400	13,900
Foreign	1,600	1,800	1,900	2,200	2,400	2,500	2,700	2,900	2,800	2,600	2,900	2,500	2,700	2,800	3,100	3,100
Foreign (%)	12.0	12.0	12.0	14.0	14.0	15.0	16.0	16.0	16.0	15.0	17.0	16.0	16.0	17.0	19.0	18.0
Mathematics.....	5,900	6,900	7,600	8,300	9,100	9,700	10,000	10,500	10,900	11,800	11,500	10,600	10,800	10,800	10,200	10,200
United States	5,100	6,000	6,700	7,000	7,500	8,000	8,100	8,800	8,900	9,600	9,100	8,400	8,200	8,100	7,700	7,100
Foreign	700	800	800	1,200	1,400	1,600	1,800	1,700	1,900	2,200	2,400	2,200	2,600	2,700	2,500	3,100
Foreign (%)	11.00	12.0	11.0	14.0	16.0	16.0	18.0	16.0	18.0	19.0	21.0	21.0	24.0	25.0	25.0	31.0
Computer sciences.....	NA	NA	NA	—	—	100	100	300	400	900	900	1,700	1,700	2,100	2,400	2,900
United States	NA	NA	NA	—	—	100	—	200	300	500	600	1,100	900	1,300	1,400	1,600
Foreign	NA	NA	NA	—	—	—	100	100	100	400	300	600	700	900	1,000	1,300
Foreign (%)	NA	NA	NA	—	—	—	—	26.0	24.0	46.0	35.0	37.0	45.0	40.0	42.0	46.0
Earth, atmospheric, and ocean sciences.....	2,200	2,500	2,700	2,800	2,900	3,100	3,100	3,200	3,600	3,600	3,700	3,600	3,800	4,100	4,200	4,300
United States	2,000	2,200	2,400	2,400	2,500	2,600	2,700	2,900	3,100	3,300	3,300	3,200	3,200	3,600	3,500	3,500
Foreign	100	200	300	300	300	400	400	300	500	300	400	400	600	500	700	800
Foreign (%)	7.0	8.0	10.0	11.0	12.0	13.0	12.0	11.0	13.0	9.0	12.0	12.0	15.0	13.0	17.0	17.0
Life sciences.....	21,000	23,400	24,600	27,000	29,600	32,600	33,700	35,800	36,400	37,400	35,800	37,200	38,300	40,600	41,200	43,100
United States	18,800	20,900	22,000	23,800	26,000	28,700	29,500	31,500	32,100	33,400	31,700	33,200	33,900	35,800	36,200	36,900
Foreign	1,700	2,000	2,100	2,900	3,200	3,700	4,000	4,100	4,200	4,000	4,100	4,000	4,400	4,800	5,000	6,200
Foreign (%)	8.0	8.0	9.0	11.0	11.0	11.0	12.0	12.0	11.0	11.0	12.0	11.0	12.0	12.0	12.0	14.0
Psychology.....	7,300	8,700	9,100	9,900	11,700	12,800	13,500	14,300	15,000	15,300	14,300	14,500	15,300	15,600	15,900	15,700
United States	6,600	7,900	8,400	9,200	10,700	11,900	12,400	13,200	13,900	14,400	13,400	13,700	14,200	14,500	14,800	14,400
Foreign	500	600	500	600	900	900	1,000	1,000	1,000	900	800	900	1,100	1,100	1,100	1,200
Foreign (%)	7.0	7.0	6.0	6.0	8.0	7.0	8.0	7.0	7.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0
Social sciences	15,900	18,500	20,700	21,700	24,900	26,300	27,700	29,500	31,100	30,600	29,900	28,100	28,800	30,100	29,600	31,000
United States	13,500	15,700	17,900	18,100	20,900	22,200	23,300	25,200	26,400	26,200	25,400	23,900	24,100	25,100	24,400	25,200
Foreign	2,000	2,500	2,500	3,400	3,800	4,000	4,300	4,200	4,600	4,400	4,500	4,200	4,700	5,100	5,200	5,800
Foreign (%)	13.0	13.0	12.0	16.0	15.0	15.0	16.0	14.0	15.0	14.0	15.0	15.0	16.0	17.0	18.0	19.0
Engineering.....	8,700	9,700	10,700	11,600	12,400	13,700	13,900	15,300	15,900	15,800	15,700	15,300	16,600	16,600	16,800	17,200
United States	7,100	7,900	8,800	8,800	9,600	10,500	10,300	11,200	11,400	11,200	10,900	10,200	11,300	11,100	11,000	10,800
Foreign	1,500	1,700	1,800	2,700	2,800	3,200	3,600	4,100	4,500	4,600	4,800	5,100	5,300	5,500	5,800	6,400
Foreign (%)	18.0	18.0	17.0	24.0	22.0	23.0	26.0	27.0	28.0	29.0	31.0	33.0	32.0	33.0	35.0	37.0

S&E doctorate holders employed at academic institutions, by type of position, degree field, and place of birth: 1973–2003

Position, field, and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Full-time junior faculty																
All fields	29,300	32,100	34,900	34,000	34,600	32,800	37,200	37,200	38,700	40,100	43,800	44,000	46,400	47,400	50,500	52,700
United States.....	26,000	28,800	31,400	29,300	29,900	27,700	30,600	30,700	31,000	30,800	33,500	34,300	35,600	36,700	38,700	38,000
Foreign.....	3,300	3,200	3,400	4,700	4,600	5,000	6,400	6,400	7,600	9,200	10,300	9,700	10,900	10,600	11,700	14,700
Foreign (%)	11.0	10.0	10.0	14.0	13.0	15.0	17.0	17.0	20.0	23.0	24.0	22.0	23.0	23.0	23.0	28.0
Physical sciences.....	4,800	4,300	4,800	4,000	3,700	3,100	3,500	3,600	3,700	4,100	4,300	4,500	4,800	5,100	5,000	5,500
United States	4,200	3,900	4,200	3,300	3,100	2,600	2,900	3,100	3,000	3,100	3,200	3,500	3,500	3,700	3,700	3,800
Foreign	600	500	500	700	500	400	600	600	700	1,000	1,200	1,000	1,300	1,300	1,300	1,700
Foreign (%)	12.0	11.0	11.0	17.0	14.0	15.0	18.0	15.0	19.0	26.0	27.0	22.0	26.0	26.0	26.0	31.0
Mathematics.....	3,300	3,500	3,300	3,100	2,600	2,500	2,700	2,400	2,600	2,400	3,200	2,400	2,800	2,400	2,300	2,800
United States	3,000	3,100	3,000	2,600	2,100	1,900	2,100	1,900	1,700	1,300	1,700	1,500	1,800	1,700	1,600	1,700
Foreign	400	300	300	500	500	600	700	500	1,000	1,100	1,500	900	1,000	700	700	1,100
Foreign (%)	11.0	10.0	8.0	17.0	20.0	24.0	24.0	22.0	36.0	45.0	46.0	38.0	35.0	28.0	30.0	39.0
Computer sciences.....	NA	NA	NA	100	200	300	600	600	900	1,000	1,400	1,200	1,300	1,200	900	1,300
United States	NA	NA	NA	—	200	300	400	400	500	500	700	600	700	800	600	600
Foreign	NA	NA	NA	—	100	100	200	200	400	500	700	600	600	400	300	700
Foreign (%)	NA	NA	NA	—	28.0	25.0	29.0	33.0	48.0	47.0	48.0	50.0	47.0	36.0	33.0	53.0
Earth, atmospheric, and ocean sciences.....	800	900	900	700	900	900	1,100	1,100	1,100	900	900	1,100	1,300	1,500	1,700	1,800
United States	700	800	800	600	800	800	900	1,000	900	800	600	900	1,100	1,300	1,500	1,500
Foreign	100	100	100	100	100	100	100	100	200	200	200	200	200	200	200	300
Foreign (%)	10.0	12.0	10.0	11.0	10.0	9.0	14.0	13.0	16.0	17.0	28.0	18.0	19.0	13.0	12.0	19.0
Life sciences.....	8,500	9,700	10,300	10,300	11,300	10,800	11,900	12,300	12,800	13,700	15,000	15,600	16,900	17,500	19,200	20,100
United States	7,700	8,700	9,500	8,800	9,900	9,700	10,600	10,700	11,300	11,600	12,700	13,200	13,900	13,900	14,800	14,700
Foreign	800	900	800	1,500	1,300	1,100	1,300	1,500	1,500	2,000	2,300	2,400	3,000	3,600	4,400	5,400
Foreign (%)	9.0	10.0	8.0	14.0	12.0	10.0	11.0	12.0	12.0	15.0	15.0	15.0	18.0	21.0	23.0	27.0
Psychology.....	3,600	4,200	4,800	4,400	4,800	4,500	5,000	4,900	5,200	5,400	5,200	5,500	5,500	6,200	6,600	6,100
United States	3,400	4,000	4,500	4,100	4,500	4,200	4,600	4,600	4,800	5,000	4,800	5,100	5,000	5,700	6,100	5,300
Foreign	200	200	300	300	200	200	300	300	400	300	400	400	500	500	600	700
Foreign (%)	4.0	4.0	6.0	7.0	5.0	5.0	6.0	6.0	8.0	6.0	8.0	8.0	9.0	9.0	9.0	12.0
Social sciences.....	5,700	7,100	8,200	8,600	8,800	8,100	8,400	8,200	7,900	8,400	9,300	9,000	8,900	9,100	9,600	9,500
United States	5,000	6,300	7,100	7,600	7,500	6,800	7,000	6,900	6,600	6,300	7,300	6,800	6,600	6,900	7,500	7,400
Foreign	700	800	1,000	1,000	1,200	1,300	1,300	1,300	1,400	2,100	2,000	2,200	2,300	2,200	2,200	2,200
Foreign (%)	13.0	11.0	12.0	12.0	14.0	16.0	16.0	16.0	17.0	25.0	21.0	24.0	26.0	24.0	23.0	23.0
Engineering.....	2,600	2,500	2,700	2,800	2,300	2,700	4,000	4,000	4,300	4,300	4,500	4,800	5,000	4,500	5,100	5,600
United States	2,000	2,100	2,200	2,100	1,700	1,500	2,100	2,200	2,300	2,300	2,400	2,800	3,000	2,800	3,000	3,000
Foreign	500	400	500	600	600	1,200	1,900	1,800	2,100	2,000	2,100	2,000	2,000	1,700	2,000	2,600
Foreign (%)	20.0	16.0	18.0	23.0	27.0	44.0	47.0	46.0	47.0	46.0	47.0	42.0	40.0	38.0	39.0	47.0

S&E doctorate holders employed at academic institutions, by type of position, degree field, and place of birth: 1973–2003

Position, field, and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Full-time other																
All fields	7,500	8,300	8,800	11,400	12,600	13,400	18,100	16,400	19,200	20,200	22,200	23,900	26,400	29,300	31,700	35,100
United States	6,500	7,300	7,600	9,900	10,800	11,000	15,400	13,700	16,000	16,700	18,600	19,000	21,800	23,700	25,400	26,700
Foreign	900	900	1,200	1,500	1,700	2,300	2,700	2,700	3,100	3,500	3,600	4,800	4,600	5,600	6,300	8,500
Foreign (%)	14.0	11.0	13.0	13.0	14.0	18.0	15.0	16.0	16.0	17.0	16.0	20.0	17.0	19.0	20.0	24.0
Physical sciences	1,900	1,900	2,100	2,000	2,400	2,500	3,000	2,600	3,300	3,200	3,700	3,800	4,600	5,600	5,500	6,000
United States	1,600	1,700	1,900	1,700	2,000	2,000	2,600	2,100	2,600	2,600	2,800	2,900	3,600	4,400	4,300	4,400
Foreign	300	200	200	300	400	500	400	600	700	600	900	900	1,000	1,100	1,200	1,600
Foreign (%)	17.0	12.0	12.0	15.0	15.0	22.0	14.0	21.0	20.0	19.0	25.0	23.0	22.0	20.0	22.0	27.0
Mathematics	200	300	400	400	400	300	500	400	500	600	500	600	800	800	1,000	1,100
United States	200	300	400	300	300	300	500	300	400	400	300	400	700	500	700	800
Foreign	—	100	100	100	—	—	—	100	100	300	100	200	200	300	300	300
Foreign (%)	—	16.0	16.0	22.0	—	—	—	33.0	17.0	43.0	25.0	31.0	19.0	34.0	30.0	28.0
Computer sciences	NA	NA	NA	—	—	100	100	100	100	100	200	200	200	300	300	600
United States	NA	NA	NA	—	—	—	100	100	100	100	100	100	100	200	200	500
Foreign	NA	NA	NA	—	—	—	—	—	—	—	—	100	—	100	100	100
Foreign (%)	NA	NA	NA	—	—	—	—	—	—	—	—	38.0	—	31.0	33.0	19.0
Earth, atmospheric, and ocean sciences	300	300	300	500	500	500	700	800	700	900	1,100	1,100	1,400	1,400	1,600	1,900
United States	300	300	300	400	500	400	600	600	600	800	1,000	800	1,200	1,000	1,200	1,500
Foreign	—	—	—	100	—	100	100	100	100	100	100	300	300	300	400	500
Foreign (%)	—	—	—	14.0	—	15.0	18.0	18.0	13.0	9.0	9.0	24.0	19.0	25.0	25.0	24.0
Life sciences	2,500	2,400	2,800	3,900	4,000	4,600	6,200	6,000	6,700	7,200	7,700	8,400	8,400	9,500	10,500	11,900
United States	2,100	2,000	2,200	3,100	3,200	3,600	5,200	5,000	5,500	6,000	6,500	6,900	7,000	7,500	8,200	8,500
Foreign	400	300	500	700	800	900	900	1,000	1,200	1,200	1,200	1,600	1,400	2,000	2,300	3,400
Foreign (%)	16.0	12.0	18.0	19.0	20.0	20.0	15.0	16.0	17.0	17.0	16.0	19.0	16.0	21.0	22.0	28.0
Psychology	800	1,000	1,200	1,800	2,200	2,200	2,900	2,800	2,900	2,800	3,900	3,900	4,000	4,600	4,900	5,600
United States	800	1,000	1,200	1,700	2,100	2,000	2,700	2,600	2,800	2,600	3,600	3,600	3,700	4,300	4,500	5,100
Foreign	—	—	—	100	200	200	200	200	200	200	300	400	300	300	400	500
Foreign (%)	—	—	—	6.0	7.0	9.0	7.0	8.0	6.0	9.0	9.0	9.0	8.0	7.0	8.0	8.0
Social sciences	1,000	1,500	1,200	1,900	2,000	2,200	3,200	2,600	3,500	3,500	3,700	3,600	3,900	4,300	4,500	4,500
United States	900	1,300	1,000	1,800	1,800	1,900	2,600	2,300	3,000	3,200	3,300	3,100	3,300	3,600	3,800	3,500
Foreign	100	100	100	100	200	300	600	300	500	400	400	500	600	800	700	900
Foreign (%)	8.0	9.0	11.0	5.0	11.0	12.0	18.0	12.0	13.0	10.0	11.0	15.0	15.0	18.0	16.0	21.0
Engineering	800	900	800	900	1,100	1,100	1,500	1,100	1,500	1,800	1,500	2,100	3,100	3,000	3,400	3,600
United States	600	800	600	800	1,000	800	1,100	700	1,000	1,100	1,000	1,200	2,300	2,200	2,600	2,400
Foreign	100	100	100	100	100	300	400	300	500	700	500	900	800	800	900	1,200
Foreign (%)	18.0	11.0	19.0	13.0	7.0	28.0	25.0	32.0	32.0	38.0	35.0	43.0	26.0	27.0	26.0	34.0

S&E doctorate holders employed at academic institutions, by type of position, degree field, and place of birth: 1973–2003

Position, field, and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Postdocs																
All fields	4,200	6,200	7,600	8,100	8,500	8,300	8,700	9,300	11,500	9,900	13,300	16,800	18,900	18,500	17,500	15,800
United States.....	3,300	4,800	6,000	6,500	6,600	6,700	6,800	6,700	8,300	6,600	8,100	10,400	11,400	11,200	10,300	9,000
Foreign.....	700	1,300	1,600	1,700	1,900	1,500	1,800	2,600	3,100	3,200	5,200	6,400	7,500	7,400	7,100	6,800
Foreign (%)	17.0	21.0	21.0	20.0	22.0	18.0	21.0	28.0	27.0	33.0	39.0	38.0	40.0	40.0	41.0	43.0
Physical sciences.....	1,700	2,100	2,200	1,900	1,900	1,400	1,900	2,000	2,400	1,900	3,000	3,900	3,200	2,900	2,600	2,200
United States	1,300	1,700	1,700	1,400	1,300	1,100	1,200	1,100	1,400	1,000	1,600	2,100	1,600	1,500	1,600	1,000
Foreign	300	500	500	500	600	300	700	900	1,000	900	1,400	1,800	1,600	1,400	1,100	1,300
Foreign (%)	20.0	22.0	23.0	27.0	32.0	23.0	36.0	46.0	43.0	47.0	47.0	47.0	50.0	48.0	42.0	57.0
Mathematics.....	—	100	100	100	100	100	100	300	200	100	—	500	500	600	800	500
United States	—	100	100	100	100	100	100	100	100	—	—	200	200	300	400	100
Foreign	—	—	—	—	—	—	—	200	100	100	—	300	200	300	400	300
Foreign (%)	—	—	—	—	—	—	—	64.0	49.0	—	—	62.0	54.0	57.0	50.0	69.0
Computer sciences.....	NA	NA	NA	—	—	—	—	—	—	—	—	100	100	100	—	100
United States	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	100	—	—
Foreign	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—	100
Foreign (%)	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—	—
Earth, atmospheric, and ocean sciences.....	100	100	200	100	200	200	200	300	300	300	500	500	600	500	400	400
United States	100	100	100	100	100	100	100	200	200	200	300	300	400	400	300	200
Foreign	—	—	—	—	—	—	—	—	—	200	200	200	200	100	100	200
Foreign (%)	—	—	—	—	—	—	—	—	—	44.0	36.0	40.0	39.0	15.0	25.0	42.0
Life sciences.....	1,900	3,000	4,000	4,700	5,200	5,100	5,200	5,600	6,800	6,400	8,200	9,200	10,800	11,700	11,000	10,000
United States	1,600	2,400	3,200	3,900	4,300	4,300	4,300	4,500	5,400	4,700	5,500	6,200	6,700	7,000	6,300	6,100
Foreign	300	700	700	800	1,000	800	900	1,100	1,400	1,700	2,700	3,000	4,100	4,700	4,700	4,000
Foreign (%)	15.0	22.0	19.0	17.0	19.0	16.0	18.0	19.0	20.0	26.0	33.0	33.0	38.0	40.0	43.0	40.0
Psychology.....	200	400	500	600	600	600	700	700	800	500	400	1,100	1,300	1,200	1,200	900
United States	100	400	500	600	600	500	700	600	800	400	300	1,000	1,100	1,000	1,100	800
Foreign	—	—	—	—	—	—	—	—	—	100	100	100	200	100	100	100
Foreign (%)	—	—	—	—	—	—	—	—	—	13.0	16.0	8.0	16.0	11.0	8.0	14.0
Social sciences.....	100	200	300	300	300	600	300	100	400	300	200	400	700	500	600	500
United States	100	200	300	200	300	500	300	100	200	200	100	300	600	400	400	300
Foreign	—	100	—	100	—	100	—	—	100	100	100	100	100	100	200	200
Foreign (%)	—	22.0	—	42.0	—	19.0	—	—	32.0	30.0	51.0	23.0	17.0	23.0	33.0	37.0
Engineering.....	200	300	400	300	200	300	200	500	600	500	1,000	1,200	1,700	1,100	900	1,100
United States	100	200	200	200	—	100	—	100	200	100	200	300	700	400	300	400
Foreign	100	100	200	200	100	200	100	400	400	300	800	900	900	700	500	700
Foreign (%)	42.0	41.0	55.0	51.0	—	65.0	—	76.0	66.0	68.0	76.0	72.0	56.0	60.0	56.0	63.0

S&E doctorate holders employed at academic institutions, by type of position, degree field, and place of birth: 1973–2003

Position, field, and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Part-time																
All fields	2,900	3,200	3,400	4,500	4,000	6,000	6,500	5,700	6,200	7,400	5,900	5,500	8,900	8,200	9,000	13,200
United States.....	2,500	2,800	3,000	3,900	3,400	5,400	5,400	4,900	5,500	6,500	4,700	4,600	7,300	6,400	7,200	10,700
Foreign.....	300	300	400	500	500	500	1,000	700	600	900	1,100	900	1,600	1,900	1,800	2,600
Foreign (%)	12.0	10.0	11.0	12.0	13.0	9.0	15.0	13.0	10.0	12.0	19.0	17.0	18.0	23.0	20.0	19.0
Physical sciences.....	600	600	600	700	600	1,000	900	600	500	900	700	700	1,000	700	700	800
United States.....	500	500	500	600	500	900	600	500	400	800	400	500	600	400	500	500
Foreign	100	100	100	100	100	100	200	100	100	100	300	300	300	300	200	200
Foreign (%)	15.0	12.0	9.0	18.0	18.0	9.0	25.0	16.0	16.0	14.0	39.0	35.0	33.0	40.0	29.0	30.0
Mathematics.....	100	200	200	300	200	200	200	200	300	300	300	500	700	700	600	800
United States.....	100	200	200	200	200	200	200	100	200	300	200	400	500	400	400	600
Foreign	—	—	—	100	—	—	100	—	—	—	100	100	200	300	200	300
Foreign (%)	—	—	—	21.0	—	—	23.0	—	—	—	34.0	24.0	31.0	40.0	33.0	31.0
Computer sciences.....	NA	NA	NA	—	—	—	—	—	—	—	—	—	100	100	100	200
United States.....	NA	NA	NA	—	—	—	—	—	—	—	—	—	100	100	100	100
Foreign	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—	100
Foreign (%)	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—	—	38.0
Earth, atmospheric, and ocean sciences.....	100	100	100	100	100	100	200	200	200	300	300	200	200	300	300	400
United States.....	100	100	100	100	100	100	200	200	200	200	200	200	200	200	300	300
Foreign	—	—	—	—	—	—	—	—	—	100	—	—	100	100	—	—
Foreign (%)	—	—	—	—	—	—	—	—	—	22.0	—	—	29.0	25	—	—
Life sciences.....	900	900	1,000	1,200	1,200	1,700	1,700	1,600	1,900	2,300	1,600	1,200	2,900	2,600	2,400	4,000
United States.....	800	800	900	1,000	1,000	1,500	1,400	1,400	1,800	2,100	1,400	1,100	2,500	2,100	2,000	3,400
Foreign	100	100	100	100	100	200	200	200	200	200	200	100	400	400	400	600
Foreign (%)	13.0	9.0	11.0	9.0	11.0	10.0	13.0	12.0	9.0	7.0	10.0	11.0	15.0	17.0	17.0	14.0
Psychology.....	400	500	600	1,000	800	1,000	1,000	1,000	1,000	1,100	1,200	1,100	1,100	1,300	1,800	3,100
United States.....	400	500	500	900	700	900	900	1,000	900	1,000	1,100	1,100	1,100	1,300	1,600	2,800
Foreign	—	—	—	100	100	100	100	—	100	100	100	—	—	100	200	300
Foreign (%)	—	—	—	10.0	12.0	9.0	14.0	—	8.0	11.0	5.0	—	—	5.0	11.0	9.0
Social sciences.....	700	800	800	1,000	1,000	1,600	2,200	1,800	1,700	2,000	1,300	1,300	2,600	2,200	2,700	3,100
United States.....	500	700	700	900	800	1,400	1,900	1,500	1,500	1,700	1,000	1,200	2,200	1,700	2,100	2,400
Foreign	100	100	100	100	100	100	300	200	200	300	300	200	500	600	500	700
Foreign (%)	15.0	8.0	9.0	9.0	13.0	8.0	13.0	14.0	10.0	15.0	23.0	14.0	17.0	25.0	19.0	23.0
Engineering.....	100	100	100	300	200	400	300	300	500	500	500	400	300	400	400	800
United States.....	100	100	100	200	100	300	300	200	500	400	300	200	200	200	200	400
Foreign	—	—	—	100	—	—	—	100	100	100	200	200	100	200	200	400
Foreign (%)	—	—	—	18.0	—	—	—	28.0	13.0	20.0	40.0	42.0	46.0	53.0	50.0	47.0

— = sample too small; NA = not available

NOTES: Values rounded to nearest hundred. Foreign (%) based on actual rather than rounded values and reported to nearest whole number. Small number of unknowns through 1987 not shown. Senior faculty includes full and associate professors. Junior faculty includes assistant professors and instructors. Other full-time positions include nonfaculty positions such as research associates, adjunct appointments, lecturers, and administrative positions. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Appendix table 5-31

(Page 1 of 3)

S&E doctorate holders employed in academia, by degree field, type of position, and primary work activity: 1973–2003

(Thousands)

Field, position, and work activity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All fields																
All positions.....	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2	245.5	258.3
Research.....	27.8	30.8	37.0	41.3	46.5	48.9	55.9	66.5	72.2	73.9	80.2	83.0	88.6	91.4	93.8	102.9
Teaching.....	73.3	83.8	82.2	83.8	95.9	97.7	101.0	99.3	100.9	103.4	98.3	100.2	105.4	108.6	109.0	105.9
Other.....	16.9	19.4	26.2	30.2	24.7	29.6	33.3	30.1	33.5	33.2	35.2	34.3	38.6	40.2	42.8	49.5
Full-time faculty.....	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0	187.4	194.1
Research.....	19.8	21.4	25.8	28.1	31.8	33.6	39.5	48.6	51.6	53.8	56.8	56.6	58.0	60.4	62.8	71.5
Teaching.....	69.9	80.2	78.4	79.7	92.1	91.9	94.9	93.6	93.9	96.7	91.4	91.9	95.4	98.6	97.9	85.0
Other.....	13.6	14.8	21.3	23.4	18.0	22.9	22.5	22.2	24.2	22.6	24.1	22.9	24.9	25.0	26.8	37.6
Physical sciences																
All positions.....	22.1	23.6	25.0	24.6	25.3	25.1	27.0	27.2	27.7	27.7	28.6	29.4	30.2	30.9	30.4	31.5
Research.....	5.9	6.4	7.9	7.5	8.0	7.7	9.4	10.2	10.9	10.6	12.0	12.6	12.7	12.2	11.9	12.6
Teaching.....	14.0	14.6	13.8	13.4	14.7	14.0	14.4	14.0	13.7	13.8	12.8	12.9	13.5	14.0	13.8	13.3
Other.....	2.2	2.6	3.3	3.7	2.6	3.3	3.2	2.9	3.1	3.3	3.8	3.8	4.0	4.7	4.7	5.7
Full-time faculty.....	17.8	18.9	20.0	20.0	20.5	20.2	21.2	22.0	21.5	21.7	21.3	20.9	21.4	21.7	21.6	22.5
Research.....	3.0	3.4	4.4	4.4	4.6	4.5	5.6	6.5	6.5	6.7	7.1	6.9	6.8	6.7	6.6	7.7
Teaching.....	13.3	13.9	13.1	12.7	14.1	13.1	13.6	13.4	12.8	12.8	11.8	11.6	12.2	12.7	12.6	11.8
Other.....	1.5	1.7	2.5	2.8	1.8	2.6	2.0	2.0	2.2	2.1	2.3	2.3	2.4	2.3	2.4	3.1
Mathematics																
All positions.....	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2	14.9	15.4
Research.....	1.5	1.5	1.8	2.1	1.9	2.0	2.7	3.2	3.5	3.5	3.4	3.3	3.5	2.9	3.3	3.8
Teaching.....	7.4	8.5	8.5	8.6	9.1	9.4	9.3	9.2	9.5	10.1	10.3	9.8	10.2	10.5	10.2	9.4
Other.....	0.8	1.0	1.4	1.6	1.3	1.6	1.6	1.4	1.5	1.6	1.8	1.5	1.8	1.7	1.4	2.2
Full-time faculty.....	9.3	10.4	10.9	11.4	11.7	12.3	12.7	12.9	13.5	14.2	14.7	13.0	13.6	13.1	12.6	13.0
Research.....	1.4	1.3	1.6	1.8	1.8	1.8	2.5	2.7	3.2	3.2	3.1	2.7	2.8	2.3	2.3	3.1
Teaching.....	7.2	8.2	8.1	8.3	8.8	9.0	8.9	9.0	9.0	9.6	10.0	9.0	9.3	9.4	9.2	8.2
Other.....	0.7	0.9	1.2	1.3	1.1	1.4	1.3	1.2	1.3	1.4	1.6	1.3	1.5	1.4	1.1	1.7
Computer sciences																
All positions.....	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7	3.8	5.2
Research.....	NA	NA	NA	0.0	0.1	0.2	0.4	0.7	0.8	1.1	0.9	1.0	1.1	1.1	1.3	1.9
Teaching.....	NA	NA	NA	0.1	0.2	0.3	0.3	0.3	0.6	0.7	1.4	1.8	1.8	2.1	1.9	2.5
Other.....	NA	NA	NA	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.5	0.5	0.8
Full-time faculty.....	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.8	2.3	2.8	3.0	3.3	3.3	4.2
Research.....	NA	NA	NA	0.0	0.1	0.1	0.3	0.5	0.7	1.0	0.7	0.9	1.0	0.9	1.1	1.6
Teaching.....	NA	NA	NA	0.1	0.2	0.3	0.3	0.3	0.5	0.7	1.3	1.7	1.7	2.0	1.8	2.3
Other.....	NA	NA	NA	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4

S&E doctorate holders employed in academia, by degree field, type of position, and primary work activity: 1973–2003

(Thousands)

Field, position, and work activity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Earth, atmospheric, and ocean sciences																
All positions.....	3.4	3.9	4.2	4.2	4.6	4.8	5.2	5.6	5.9	6.0	6.4	6.4	7.3	7.8	8.2	8.8
Research.....	0.7	0.8	1.0	1.0	1.4	1.5	1.6	2.1	2.4	2.5	2.7	2.6	2.9	2.9	3.1	3.6
Teaching.....	2.3	2.7	2.7	2.5	2.8	2.8	3.0	2.9	3.0	3.0	2.9	3.0	3.2	3.8	4.1	3.7
Other.....	0.4	0.4	0.5	0.7	0.4	0.5	0.6	0.6	0.5	0.5	0.8	0.8	1.2	1.1	1.1	1.5
Full-time faculty.....	3.0	3.4	3.6	3.5	3.8	4.0	4.2	4.4	4.7	4.5	4.5	4.7	5.1	5.6	5.9	6.1
Research.....	0.5	0.5	0.6	0.6	0.8	0.9	0.9	1.3	1.5	1.5	1.6	1.5	1.6	1.5	1.7	2.2
Teaching.....	2.2	2.6	2.6	2.4	2.8	2.7	2.9	2.8	2.8	2.8	2.5	2.8	2.9	3.4	3.6	3.2
Other.....	0.3	0.3	0.4	0.5	0.2	0.4	0.4	0.4	0.3	0.2	0.4	0.4	0.6	0.7	0.6	0.7
Life sciences																
All positions.....	34.9	39.4	42.6	47.0	51.3	54.9	58.7	61.3	64.8	66.9	68.2	71.6	77.3	81.9	84.3	89.2
Research.....	12.8	14.5	16.6	19.7	23.2	24.3	27.1	31.5	33.8	34.5	36.0	37.7	40.5	43.2	43.7	46.4
Teaching.....	16.6	19.0	18.1	18.1	20.5	21.1	20.9	20.1	20.3	20.9	20.2	21.8	23.4	25.1	25.7	25.2
Other.....	5.5	5.9	8.0	9.3	7.6	9.4	10.6	9.7	10.7	11.5	12.0	12.2	13.4	13.6	14.8	17.6
Full-time faculty.....	29.5	33.1	34.9	37.3	40.9	43.5	45.6	48.1	49.3	51.1	50.8	52.8	55.2	58.1	60.4	63.2
Research.....	9.3	10.3	11.4	13.1	15.5	16.5	18.6	22.3	22.6	23.8	24.1	24.7	25.7	27.0	27.7	30.1
Teaching.....	15.7	18.1	17.1	17.1	19.6	19.6	19.5	18.7	18.7	19.1	18.4	19.8	20.7	22.5	22.8	21.4
Other.....	4.5	4.7	6.4	7.1	5.8	7.4	7.4	7.2	7.9	8.2	8.3	8.3	8.7	8.6	9.9	11.7
Psychology																
All positions.....	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0	30.4	31.3
Research.....	2.0	2.2	2.8	3.4	4.1	4.4	4.6	5.2	5.9	6.2	6.7	7.4	8.0	8.6	8.7	10.0
Teaching.....	7.7	9.7	9.4	9.5	11.7	11.6	12.3	13.0	12.8	12.8	11.6	11.9	12.4	13.0	13.3	13.3
Other.....	2.5	2.9	4.0	4.8	4.4	5.0	6.2	5.6	6.3	6.2	6.7	6.9	7.0	7.3	8.4	8.1
Full-time faculty.....	10.8	12.8	13.9	14.3	16.4	17.3	18.5	19.2	20.2	20.7	19.5	20.1	20.8	21.9	22.6	21.7
Research.....	1.6	1.5	2.0	2.2	2.5	2.9	3.3	3.9	4.5	5.0	5.3	5.4	5.9	6.1	6.3	7.1
Teaching.....	7.3	9.2	8.9	8.9	11.0	10.9	11.6	12.1	11.9	12.2	10.5	10.9	11.3	11.9	11.9	10.8
Other.....	2.0	2.1	3.0	3.2	2.9	3.5	3.6	3.3	3.8	3.6	3.7	3.8	3.6	3.9	4.3	3.8
Social sciences																
All positions.....	23.4	28.0	31.1	33.6	36.9	38.9	42.0	42.2	44.5	44.8	44.4	42.5	44.9	46.2	46.9	48.6
Research.....	2.8	3.2	4.1	4.2	4.5	4.9	5.7	7.5	8.2	8.4	10.7	9.8	9.8	11.1	11.7	13.0
Teaching.....	16.9	20.5	21.0	22.6	26.8	27.7	29.1	28.5	28.8	29.8	27.6	26.9	28.3	28.0	28.0	27.3
Other.....	3.7	4.3	6.0	6.8	5.6	6.1	7.1	6.1	7.6	6.6	6.1	5.8	6.8	7.2	7.2	8.2
Full-time faculty.....	21.6	25.5	28.8	30.4	33.7	34.4	36.1	37.7	39.0	39.0	39.2	37.1	37.7	39.2	39.2	40.5
Research.....	2.5	2.7	3.6	3.4	3.8	3.8	4.6	6.3	7.1	7.1	8.9	8.3	7.6	9.2	9.7	10.8
Teaching.....	16.1	19.5	20.1	21.4	25.7	25.9	26.8	26.5	26.4	27.6	25.9	24.6	25.3	24.9	24.9	23.7
Other.....	3.0	3.3	5.2	5.5	4.2	4.7	4.7	4.8	5.4	4.3	4.5	4.2	4.8	5.1	4.7	6.0

S&E doctorate holders employed in academia, by degree field, type of position, and primary work activity: 1973–2003

(Thousands)

Field, position, and work activity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
Engineering																
All positions.....	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.8	22.8	23.1	23.8	26.6	25.5	26.6	28.3
Research.....	2.1	2.3	2.9	3.4	3.3	3.9	4.4	6.2	6.9	7.2	7.9	8.7	10.1	9.4	10.1	11.6
Teaching.....	8.4	8.9	8.7	9.1	10.1	10.8	11.7	11.3	12.2	12.2	11.6	12.1	12.6	12.1	11.9	11.2
Other.....	1.9	2.3	3.1	3.3	2.7	3.5	3.8	3.7	3.7	3.4	3.7	3.0	3.8	4.0	4.7	5.5
Full-time faculty.....	11.3	12.2	13.5	14.3	14.7	16.4	17.9	19.3	20.2	20.1	20.1	20.0	21.5	21.1	21.9	22.8
Research.....	1.5	1.7	2.3	2.6	2.7	3.0	3.7	5.0	5.4	5.5	6.0	6.3	6.7	6.7	7.4	8.9
Teaching.....	8.1	8.7	8.5	8.9	10.0	10.4	11.2	11.0	11.7	11.8	11.0	11.5	12.0	11.7	11.2	10.2
Other.....	1.6	1.8	2.7	2.8	2.0	2.9	2.9	3.3	3.1	2.7	3.1	2.2	2.8	2.7	3.3	3.7

NA = not available

NOTES: Faculty positions include full, associate, and assistant professors and instructors. Research includes basic or applied research, development, or design. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-32

S&E doctorate holders employed in academia whose primary or secondary work activity was teaching or research, by type of position and degree field: 1973–2003

(Thousands)

Position, work activity, and field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All positions																
Teaching																
All fields	94.9	110.4	110.8	115.2	125.2	131.3	138.5	151.4	155.8	160.8	145.2	147.1	153.5	158.7	160.6	160.0
Physical sciences	17.5	18.9	18.6	18.4	18.9	18.6	19.6	20.9	20.4	20.9	18.5	19.2	18.8	20.2	19.2	18.8
Mathematics	8.8	10.3	10.6	10.9	11.0	11.5	12.2	12.8	13.3	14.0	13.5	12.8	13.3	13.3	12.9	12.8
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.6	0.8	1.3	1.8	2.0	2.5	2.6	2.9	2.9	3.7
Earth, atmospheric, and ocean sciences	2.7	3.2	3.2	3.1	3.5	3.8	3.8	4.3	4.5	4.7	4.1	4.3	4.6	5.0	5.4	5.4
Life sciences	25.3	29.6	28.3	29.8	32.9	34.6	35.0	40.5	41.4	43.3	36.5	38.6	41.6	43.6	44.4	43.5
Psychology	9.8	12.3	12.4	13.2	15.0	15.3	16.5	18.2	18.6	18.8	17.3	17.8	18.0	19.0	19.7	19.6
Social sciences	20.2	24.7	25.9	27.6	31.0	32.8	35.2	36.7	37.6	39.0	36.5	35.2	36.6	37.2	37.9	37.8
Engineering	10.5	11.4	11.7	12.1	12.7	14.3	15.6	17.2	18.6	18.3	16.8	16.8	18.0	17.5	18.3	18.4
Research																
All fields	82.3	90.6	85.0	90.0	100.7	104.7	115.2	144.0	151.6	156.6	150.1	153.5	164.7	168.1	172.5	178.7
Physical sciences	16.3	16.9	16.3	15.4	16.3	16.1	17.7	20.3	20.8	20.8	20.0	20.6	21.8	21.6	21.0	22.0
Mathematics	6.8	7.5	6.8	6.9	6.8	7.2	7.6	9.7	10.2	10.7	9.5	9.4	10.1	9.9	9.8	9.7
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.6	1.0	1.3	1.7	2.0	2.4	2.4	2.6	2.6	3.9
Earth, atmospheric, and ocean sciences	2.5	2.8	2.9	2.7	3.2	3.3	3.7	4.6	4.9	5.1	5.0	5.1	5.6	5.7	6.3	6.5
Life sciences	26.0	29.0	28.7	32.1	37.1	38.3	41.4	48.8	51.8	53.3	51.8	53.8	57.9	60.8	63.1	65.1
Psychology	7.3	8.5	7.7	8.3	9.9	10.5	10.7	14.3	14.3	15.7	14.9	15.6	16.1	17.2	18.2	18.9
Social sciences	14.3	16.9	13.8	14.7	17.6	17.8	20.9	28.5	30.5	31.1	29.3	28.1	29.8	30.9	31.4	31.9
Engineering	9.0	9.0	8.9	9.8	9.5	11.2	12.5	16.8	17.6	18.2	17.5	18.5	20.9	19.4	20.2	20.7
Full-time faculty																
Teaching																
All fields	88.6	103.4	104.7	107.9	117.7	122.3	127.9	141.0	143.6	148.1	134.0	134.0	138.1	143.1	144.2	140.0
Physical sciences	15.9	17.4	17.3	17.2	17.6	17.3	18.1	19.5	18.9	19.2	17.0	17.2	17.2	18.2	17.6	17.0
Mathematics	8.5	9.9	10.1	10.5	10.6	11.1	11.7	12.3	12.7	13.3	13.1	11.8	12.0	11.8	11.4	11.2
Computer sciences	NA	NA	NA	0.1	0.3	0.3	0.6	0.8	1.3	1.7	1.9	2.4	2.4	2.9	2.7	3.3
Earth, atmospheric, and ocean sciences	2.6	3.1	3.1	3.0	3.3	3.6	3.7	4.0	4.2	4.2	3.6	3.9	4.1	4.5	4.7	4.7
Life sciences	23.2	27.3	26.4	27.5	30.6	31.6	31.9	36.9	37.3	38.7	32.8	34.4	36.4	38.5	39.4	37.4
Psychology	9.1	11.4	11.6	12.0	13.7	14.1	15.1	16.7	16.9	17.5	15.4	16.0	16.1	16.9	17.4	16.0
Social sciences	19.1	23.3	24.7	26.1	29.5	30.6	32.1	34.3	34.7	36.0	34.1	32.3	32.9	33.5	33.9	33.4
Engineering	10.1	10.9	11.4	11.5	12.2	13.7	14.8	16.5	17.6	17.5	16.1	16.0	16.9	16.8	17.1	17.0
Research																
All fields	72.0	78.9	71.6	74.1	83.8	86.9	95.1	121.4	125.8	131.4	121.7	121.7	127.0	129.2	133.3	136.8
Physical sciences	13.0	13.4	12.4	11.7	12.5	12.5	13.4	16.1	16.0	16.4	14.4	14.2	14.9	14.7	14.5	15.6
Mathematics	6.6	7.1	6.4	6.4	6.5	6.9	7.3	9.1	9.8	10.2	9.1	8.4	8.9	8.5	8.3	8.4
Computer sciences	NA	NA	NA	0.0	0.2	0.3	0.5	0.8	1.2	1.6	1.8	2.2	2.2	2.4	2.3	3.3
Earth, atmospheric, and ocean sciences	2.1	2.5	2.5	2.2	2.6	2.6	2.9	3.6	4.0	3.8	3.6	3.7	3.9	4.0	4.6	4.7
Life sciences	21.8	24.1	22.9	24.7	28.7	29.6	31.9	38.3	39.0	41.0	38.4	39.5	41.2	42.5	44.6	46.1
Psychology	6.6	7.5	6.7	6.6	8.0	8.8	9.0	12.1	12.2	13.9	12.6	12.9	13.3	13.9	14.6	14.6
Social sciences	13.6	15.9	12.9	13.5	16.5	16.0	18.8	26.1	27.9	28.3	26.6	25.3	25.8	27.2	27.8	27.5
Engineering	8.2	8.3	8.0	8.9	8.8	10.2	11.4	15.2	15.7	16.2	15.1	15.5	16.7	15.9	16.6	16.8

NOTES: Research includes basic or applied research, development, or design. Faculty includes full, associate, and assistant professors and instructors. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Appendix table 5-33
Estimates of academic S&E doctoral researchers and graduate research assistants, by degree field: 1973–2003
 (Thousands)

Field	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003
All doctoral researchers and graduate research assistants																
All fields	118.2	130.6	128.7	139.0	153.4	159.6	176.2	214.2	230.6	241.8	240.3	243.4	252.7	259.4	272.4	293.1
Physical sciences	22.6	23.3	23.1	23.2	24.9	25.2	28.0	31.9	33.2	33.0	32.3	32.4	33.1	32.9	32.8	35.4
Mathematics	7.5	8.1	7.6	7.7	7.6	8.0	8.6	10.8	11.5	12.1	10.9	10.9	11.5	11.2	11.2	11.5
Computer sciences.....	NA	NA	NA	0.9	1.4	1.8	2.7	3.8	4.6	5.3	5.8	6.3	6.4	7.5	9.0	11.4
Earth, atmospheric, and ocean sciences.....	5.0	5.6	6.1	6.3	6.7	6.8	7.4	8.2	9.1	9.5	9.7	9.8	9.9	9.9	10.5	11.1
Life sciences	35.4	40.3	41.7	47.5	53.4	54.8	59.3	69.0	74.9	79.1	79.8	83.0	86.5	89.7	94.2	100.7
Psychology.....	9.2	10.7	10.0	10.8	12.8	13.5	13.8	17.5	18.1	19.9	19.5	20.2	20.9	22.0	23.2	24.5
Social sciences.....	18.3	21.7	18.7	19.9	22.8	22.8	26.0	34.0	36.7	37.9	36.7	35.3	36.5	38.1	39.2	40.3
Engineering.....	19.4	20.0	20.5	22.7	23.9	26.8	30.4	39.0	42.2	45.0	45.5	45.6	47.8	48.1	52.4	58.2
Doctoral researchers																
All fields	82.3	90.6	85.0	90.0	100.7	104.7	115.2	144.0	151.6	156.6	150.1	153.5	164.7	168.1	172.5	178.7
Physical sciences.....	16.3	16.9	16.3	15.4	16.3	16.1	17.7	20.3	20.8	20.8	20.0	20.6	21.8	21.6	21.0	22.0
Mathematics	6.8	7.5	6.8	6.9	6.8	7.2	7.6	9.7	10.2	10.7	9.5	9.4	10.1	9.9	9.8	9.7
Computer sciences.....	NA	NA	NA	0.1	0.3	0.4	0.6	1.0	1.3	1.7	2.0	2.4	2.4	2.6	2.6	3.9
Earth, atmospheric, and ocean sciences.....	2.5	2.8	2.9	2.7	3.2	3.3	3.7	4.6	4.9	5.1	5.0	5.1	5.6	5.7	6.3	6.5
Life sciences	26.0	29.0	28.7	32.1	37.1	38.3	41.4	48.8	51.8	53.3	51.8	53.8	57.9	60.8	63.1	65.1
Psychology.....	7.3	8.5	7.7	8.3	9.9	10.5	10.7	14.3	14.3	15.7	14.9	15.6	16.1	17.2	18.2	18.9
Social sciences	14.3	16.9	13.8	14.7	17.6	17.8	20.9	28.5	30.5	31.1	29.3	28.1	29.8	30.9	31.4	31.9
Engineering.....	9.0	9.0	8.9	9.8	9.5	11.2	12.5	16.8	17.6	18.2	17.5	18.5	20.9	19.4	20.2	20.7
Graduate research assistants																
All fields	35.9	40.0	43.7	49.0	52.7	54.9	61.0	70.2	79.0	85.2	90.2	89.9	88.0	91.3	99.9	114.3
Physical sciences.....	6.3	6.4	6.8	7.8	8.6	9.1	10.3	11.6	12.4	12.2	12.3	11.8	11.3	11.3	11.8	13.5
Mathematics	0.7	0.6	0.8	0.8	0.8	0.8	1.0	1.1	1.3	1.4	1.4	1.5	1.4	1.3	1.4	1.8
Computer sciences.....	0.7	0.7	0.7	0.8	1.1	1.4	2.1	2.8	3.3	3.6	3.8	3.9	4.0	4.9	6.4	7.5
Earth, atmospheric, and ocean sciences.....	2.6	2.8	3.2	3.6	3.5	3.5	3.7	3.6	4.2	4.4	4.7	4.7	4.3	4.2	4.2	4.6
Life sciences	9.4	11.3	13.0	15.4	16.3	16.5	17.9	20.2	23.1	25.8	28.0	29.2	28.6	28.9	31.1	35.5
Psychology.....	1.9	2.2	2.3	2.5	2.9	3.0	3.1	3.2	3.8	4.2	4.6	4.6	4.8	4.8	5.0	5.6
Social sciences	4.0	4.8	4.9	5.2	5.2	5.0	5.1	5.5	6.2	6.8	7.4	7.2	6.7	7.2	7.8	8.4
Engineering.....	10.4	11.0	11.6	12.9	14.4	15.6	17.9	22.2	24.6	26.8	28.0	27.1	26.9	28.7	32.2	37.4

NOTES: Academic doctoral researchers are those reporting basic or applied research, development, or design as primary or secondary work activity. Graduate research assistants are full-time graduate students with research assistantships as primary mechanism of support. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations; and Survey of Graduate Students and Postdoctorates in Science and Engineering, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-34

(Page 1 of 3)

Estimates of total academic S&E doctoral employment, S&E doctoral researchers, and S&E graduate research assistants, by Carnegie institution type and work activity: 1973–2003

Institution type	All positions		Researchers		Research as primary activity		Research assistants	
	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution
All universities and colleges								
1973	118.0	100.0	82.3	100.0	27.8	100.0	35.9	100.0
1975	134.1	100.0	90.6	100.0	30.8	100.0	40.0	100.0
1977	145.4	100.0	85.0	100.0	37.0	100.0	43.7	100.0
1979	155.3	100.0	90.0	100.0	41.3	100.0	49.0	100.0
1981	167.1	100.0	100.7	100.0	46.5	100.0	52.7	100.0
1983	176.1	100.0	104.7	100.0	48.9	100.0	54.9	100.0
1985	190.2	100.0	115.2	100.0	55.9	100.0	61.0	100.0
1987	195.9	100.0	144.0	100.0	66.5	100.0	70.2	100.0
1989	206.6	100.0	151.6	100.0	72.2	100.0	79.1	100.0
1991	210.6	100.0	156.6	100.0	73.9	100.0	85.2	100.0
1993	213.8	100.0	150.1	100.0	80.2	100.0	90.2	100.0
1995	217.5	100.0	153.5	100.0	83.0	100.0	89.9	100.0
1997	232.5	100.0	164.7	100.0	88.6	100.0	88.0	100.0
1999	240.2	100.0	168.1	100.0	91.4	100.0	91.3	100.0
2001	245.5	100.0	172.5	100.0	93.8	100.0	99.9	100.0
2003	258.3	100.0	178.7	100.0	102.9	100.0	114.3	100.0
Research universities								
1973	65.2	55.3	52.5	63.8	22.9	82.3	32.3	89.9
1975	73.4	54.7	58.0	64.0	25.5	82.8	35.6	89.0
1977	78.2	53.8	55.9	65.8	29.5	79.7	38.8	88.8
1979	83.5	53.8	59.0	65.6	32.1	77.7	42.6	86.9
1981	91.0	54.5	66.6	66.1	37.5	80.6	45.2	85.8
1983	89.9	51.1	66.3	63.3	37.4	76.5	47.1	85.8
1985	102.8	54.0	75.1	65.2	45.4	81.2	52.2	85.6
1987	106.9	54.6	90.0	62.5	53.7	80.8	59.9	85.3
1989	112.5	54.5	94.7	62.5	58.1	80.5	66.5	84.1
1991	111.6	53.0	93.8	59.9	57.9	78.3	70.1	82.3
1993	112.9	52.8	91.1	60.7	60.6	75.6	73.9	81.9
1995	112.8	51.9	92.0	59.9	62.4	75.2	73.1	81.3
1997	113.6	48.9	92.3	56.0	60.6	68.4	70.6	80.2
1999	117.2	48.8	95.5	56.8	64.3	70.4	73.1	80.1
2001	119.6	48.7	97.8	56.7	66.9	71.3	79.7	79.9
2003	127.3	49.3	102.4	57.3	73.4	71.4	91.1	79.7
Doctorate-granting institutions								
1973	14.0	11.9	9.9	12.0	1.7	6.2	3.1	8.6
1975	15.9	11.9	10.6	11.7	1.8	5.8	3.7	9.3
1977	17.2	11.8	9.4	11.1	2.4	6.5	4.0	9.2
1979	17.2	11.1	9.2	10.2	2.6	6.3	4.4	9.0
1981	18.8	11.3	10.5	10.4	2.6	5.6	5.0	9.5
1983	19.5	11.1	10.7	10.2	2.8	5.7	5.3	9.7
1985	21.2	11.1	12.4	10.8	3.5	6.3	5.8	9.5
1987	22.2	11.3	16.2	11.3	4.4	6.6	6.7	9.5
1989	23.5	11.4	16.8	11.1	4.9	6.8	7.9	10.0
1991	24.9	11.8	18.4	11.7	5.9	8.0	9.2	10.8
1993	24.2	11.3	17.4	11.6	6.7	8.4	9.9	11.0
1995	25.0	11.5	17.7	11.5	7.2	8.7	9.9	11.0
1997	25.8	11.1	19.1	11.6	8.2	9.3	10.3	11.7
1999	26.3	10.9	19.3	11.5	8.2	9.0	10.7	11.7
2001	26.3	10.7	18.8	10.9	7.7	8.2	12.2	12.3
2003	26.9	10.4	18.9	10.6	8.6	8.4	14.3	12.5

Appendix table 5-34

(Page 2 of 3)

Estimates of total academic S&E doctoral employment, S&E doctoral researchers, and S&E graduate research assistants, by Carnegie institution type and work activity: 1973–2003

Institution type	All positions		Researchers		Research as primary activity		Research assistants	
	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution
Comprehensive institutions								
1973	21.3	18.1	11.0	13.3	0.6	2.3	0.2	0.6
1975	24.8	18.5	12.5	13.8	0.8	2.7	0.4	0.9
1977	26.5	18.2	10.3	12.1	1.3	3.5	0.4	1.0
1979	26.9	17.3	10.3	11.5	1.7	4.1	1.4	2.9
1981	30.5	18.3	12.0	11.9	1.2	2.6	1.7	3.3
1983	31.6	17.9	12.8	12.2	1.4	2.9	1.9	3.5
1985	35.6	18.7	14.4	12.5	1.5	2.7	1.3	2.1
1987	36.0	18.4	20.1	14.0	1.8	2.7	1.6	2.2
1989	38.4	18.6	21.5	14.2	2.4	3.4	2.9	3.7
1991	39.5	18.8	24.0	15.3	2.8	3.9	3.8	4.5
1993	39.5	18.5	21.5	14.3	4.1	5.1	4.0	4.4
1995	41.5	19.1	23.0	15.0	4.3	5.2	4.5	5.0
1997	42.0	18.1	23.7	14.4	4.7	5.3	4.4	5.0
1999	43.6	18.2	23.5	14.0	3.9	4.2	4.8	5.2
2001	44.8	18.2	26.0	15.1	4.3	4.6	4.8	4.9
2003	46.6	18.0	25.9	14.5	4.8	4.7	5.6	4.9
Freestanding medical schools								
1973	3.3	2.8	2.6	3.1	1.5	5.3	0.3	0.8
1975	4.3	3.2	3.2	3.5	2.1	6.8	0.3	0.8
1977	4.9	3.4	3.5	4.1	2.5	6.8	0.3	0.7
1979	5.9	3.8	4.2	4.7	3.1	7.5	0.4	0.8
1981	7.2	4.3	5.3	5.3	4.1	8.8	0.5	0.9
1983	7.0	4.0	5.1	4.9	3.9	8.0	0.5	0.9
1985	8.3	4.4	5.9	5.1	4.5	8.1	0.7	1.1
1987	9.0	4.6	7.2	5.0	5.3	8.0	1.1	1.6
1989	9.7	4.7	7.6	5.0	5.6	7.8	1.6	2.0
1991	9.6	4.6	7.8	5.0	6.0	8.1	1.9	2.2
1993	10.8	5.1	8.2	5.5	6.4	8.0	2.2	2.4
1995	11.2	5.1	8.4	5.5	6.7	8.1	2.4	2.7
1997	9.8	4.2	7.4	4.5	5.9	6.7	2.5	2.8
1999	11.9	5.0	9.2	5.5	7.5	8.2	2.6	2.8
2001	12.6	5.1	9.5	5.5	7.7	8.2	2.9	2.9
2003	12.7	4.9	9.6	5.4	7.8	7.6	3.2	2.8
Liberal arts colleges								
1973	8.8	7.4	4.2	5.1	0.2	0.8	0.0	0.1
1975	10.4	7.8	4.6	5.1	0.2	0.8	0.0	0.1
1977	10.8	7.4	3.6	4.2	0.5	1.3	0.0	0.0
1979	11.3	7.3	3.5	3.9	0.4	1.0	0.1	0.1
1981	12.0	7.2	4.4	4.4	0.4	0.9	0.0	0.1
1983	12.6	7.2	4.1	3.9	0.3	0.6	0.0	0.1
1985	14.0	7.4	5.4	4.7	0.4	0.7	0.0	0.1
1987	14.6	7.5	7.7	5.4	0.6	0.9	0.0	0.0
1989	15.3	7.4	8.6	5.7	0.5	0.6	0.1	0.1
1991	15.8	7.5	9.0	5.7	0.4	0.5	0.0	0.1
1993	16.0	7.5	8.0	5.3	1.0	1.2	0.1	0.1
1995	15.8	7.3	7.9	5.2	0.7	0.9	0.1	0.1
1997	17.3	7.4	9.3	5.6	1.1	1.2	0.0	0.0
1999	18.5	7.7	9.1	5.4	0.9	1.0	0.1	0.1
2001	18.6	7.6	9.5	5.5	0.9	1.0	0.1	0.1
2003	19.1	7.4	9.8	5.5	1.3	1.3	0.1	0.1

Appendix table 5-34

(Page 3 of 3)

Estimates of total academic S&E doctoral employment, S&E doctoral researchers, and S&E graduate research assistants, by Carnegie institution type and work activity: 1973–2003

Institution type	All positions		Researchers		Research as primary activity		Research assistants	
	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution
All others								
1973	5.4	4.5	2.2	2.7	0.9	3.1	0.0	0.1
1975	5.3	4.0	1.7	1.8	0.3	1.1	0.0	0.1
1977	7.8	5.4	2.4	2.8	0.9	2.3	0.1	0.1
1979	10.5	6.8	3.8	4.3	1.4	3.3	0.1	0.1
1981	7.6	4.5	2.0	2.0	0.7	1.5	0.2	0.4
1983	15.5	8.8	5.8	5.5	3.0	6.2	0.1	0.2
1985	8.3	4.4	2.0	1.8	0.7	1.3	0.9	1.5
1987	7.2	3.7	2.7	1.9	0.6	1.0	0.9	1.3
1989	7.2	3.5	2.5	1.6	0.7	0.9	0.1	0.1
1991	9.2	4.4	3.6	2.3	0.9	1.2	0.1	0.1
1993	10.4	4.9	4.0	2.6	1.4	1.8	0.1	0.1
1995	11.2	5.1	4.4	2.9	1.8	2.2	0.1	0.1
1997	24.0	10.3	12.9	7.9	8.1	9.2	0.1	0.1
1999	22.7	9.5	11.4	6.8	6.6	7.2	0.1	0.1
2001	23.6	9.6	10.9	6.3	6.3	6.7	0.1	0.1
2003	25.6	9.9	12.1	6.8	6.9	6.7	0.2	0.2

NOTES: Researchers are those reporting basic or applied research, development, or design as either primary or secondary work activity. Graduate research assistants are full-time graduate students with research assistantships as primary mechanism of support. Institutions designated by 1994 Carnegie classification code. For information on these institutional categories, see Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education*, Princeton University Press (1994), and chapter 2 sidebar, "Carnegie Classification of Academic Institutions." Freestanding schools of engineering and technology included under comprehensive institutions. Employment at institutions without Carnegie code or with unknown administrative control included under "all others." Detail may not add to total because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations; and Survey of Graduate Students and Postdoctorates in Science and Engineering, special tabulations.

Appendix table 5-35

(Page 1 of 2)

Estimates of academic S&E doctoral researchers, by type of position and work activity: 1973–2003

Position	All academic employment		Researchers		Research as primary activity	
	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution
All positions						
1973	118.0	100.0	82.3	100.0	27.8	100.0
1975	134.1	100.0	90.6	100.0	30.8	100.0
1977	145.4	100.0	85.0	100.0	37.0	100.0
1979	155.3	100.0	90.0	100.0	41.3	100.0
1981	167.1	100.0	100.7	100.0	46.5	100.0
1983	176.1	100.0	104.7	100.0	48.9	100.0
1985	190.2	100.0	115.2	100.0	55.9	100.0
1987	195.9	100.0	144.0	100.0	66.5	100.0
1989	206.6	100.0	151.6	100.0	72.2	100.0
1991	210.6	100.0	156.6	100.0	73.9	100.0
1993	213.8	100.0	150.1	100.0	80.2	100.0
1995	217.5	100.0	153.5	100.0	83.0	100.0
1997	232.5	100.0	164.7	100.0	88.6	100.0
1999	240.2	100.0	168.1	100.0	91.4	100.0
2001	245.5	100.0	172.5	100.0	93.8	100.0
2003	258.3	100.0	178.7	100.0	102.9	100.0
Full-time faculty						
1973	103.3	87.6	72.0	87.5	19.8	71.3
1975	116.4	86.8	78.9	87.1	21.4	69.5
1977	125.6	86.4	71.6	84.2	25.8	69.7
1979	131.2	84.5	74.1	82.3	28.1	68.0
1981	141.9	84.9	83.8	83.2	31.8	68.4
1983	148.4	84.3	86.9	83.0	33.6	68.7
1985	156.9	82.5	95.1	82.6	39.5	70.7
1987	164.4	83.9	121.4	84.3	48.6	73.1
1989	169.8	82.2	125.8	83.0	51.6	71.5
1991	173.1	82.2	131.4	83.9	53.8	72.8
1993	172.4	80.6	121.7	81.1	56.9	70.9
1995	171.4	78.8	121.7	79.3	56.6	68.2
1997	178.4	76.7	127.0	77.1	58.0	65.5
1999	184.0	76.6	129.2	76.9	60.4	66.1
2001	187.4	76.3	133.3	77.3	62.8	67.0
2003	194.1	75.2	136.8	76.5	71.5	69.5
Postdocs						
1973	4.2	3.5	4.0	4.9	3.8	13.8
1975	6.2	4.6	5.9	6.5	5.7	18.5
1977	7.6	5.2	7.1	8.4	6.8	18.4
1979	8.1	5.2	7.4	8.2	6.9	16.7
1981	8.5	5.1	8.0	7.9	7.7	16.6
1983	8.3	4.7	7.4	7.1	7.1	14.5
1985	8.7	4.6	7.8	6.8	7.5	13.4
1987	9.3	4.7	8.9	6.2	8.4	12.6
1989	11.5	5.6	10.8	7.1	10.3	14.3
1991	9.9	4.7	9.4	6.0	9.2	12.4
1993	13.3	6.2	13.3	8.9	12.7	15.8
1995	16.8	7.7	16.1	10.5	15.1	18.2
1997	18.9	8.1	18.0	10.9	16.7	18.8
1999	18.5	7.7	17.9	10.6	16.6	18.2
2001	17.5	7.1	16.6	9.6	15.6	16.6
2003	15.8	6.1	15.3	8.6	14.1	13.7

Appendix table 5-35

(Page 2 of 2)

Estimates of academic S&E doctoral researchers, by type of position and work activity: 1973–2003

Position	All academic employment		Researchers		Research as primary activity	
	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution
Other						
1973	10.5	8.9	6.3	7.6	4.1	14.9
1975	11.5	8.6	5.8	6.4	3.8	12.3
1977	12.2	8.4	6.3	7.4	4.4	11.8
1979	16.0	10.3	8.5	9.5	6.3	15.2
1981	16.6	9.9	8.9	8.8	6.9	14.9
1983	19.4	11.0	10.3	9.9	8.1	16.6
1985	24.6	13.0	12.2	10.6	8.9	16.0
1987	22.1	11.3	13.7	9.5	9.6	14.4
1989	25.4	12.3	15.0	9.9	10.3	14.3
1991	27.6	13.1	15.7	10.0	11.0	14.8
1993	28.0	13.1	15.1	10.0	10.7	13.3
1995	29.3	13.5	15.7	10.2	11.4	13.7
1997	35.3	15.2	19.8	12.0	13.8	15.6
1999	37.6	15.6	21.0	12.5	14.3	15.7
2001	40.7	16.6	22.6	13.1	15.4	16.5
2003	48.4	18.7	26.6	14.9	17.3	16.8

NOTES: Researchers are those reporting basic or applied research, development, or design as either primary or secondary work activity. Full-time faculty includes full, associate, and assistant professors plus instructors. Other positions include full-time nonfaculty positions such as research associates, adjunct positions, lecturers, administrative positions, and part-time positions of all kinds. Detail may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-36

(Page 1 of 3)

Estimates of academic S&E doctoral researchers and graduate research assistants, by degree field and work activity: 1973–2003

Field	All academic employment		Researchers		Research as primary activity		Research assistants	
	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution
All fields								
1973	118.0	100.0	82.3	100.0	27.8	100.0	35.9	100.0
1975	134.1	100.0	90.6	100.0	30.8	100.0	40.0	100.0
1977	145.4	100.0	85.0	100.0	37.0	100.0	43.7	100.0
1979	155.3	100.0	90.0	100.0	41.3	100.0	49.0	100.0
1981	167.1	100.0	100.7	100.0	46.5	100.0	52.7	100.0
1983	176.1	100.0	104.7	100.0	48.9	100.0	54.9	100.0
1985	190.2	100.0	115.2	100.0	55.9	100.0	61.0	100.0
1987	195.9	100.0	144.0	100.0	66.5	100.0	70.2	100.0
1989	206.6	100.0	151.6	100.0	72.2	100.0	79.0	100.0
1991	210.6	100.0	156.6	100.0	73.9	100.0	85.2	100.0
1993	213.8	100.0	150.1	100.0	80.2	100.0	90.2	100.0
1995	217.5	100.0	153.5	100.0	83.0	100.0	89.9	100.0
1997	232.5	100.0	164.7	100.0	88.6	100.0	88.0	100.0
1999	240.2	100.0	168.1	100.0	91.4	100.0	91.3	100.0
2001	245.5	100.0	172.5	100.0	93.8	100.0	99.9	100.0
2003	258.3	100.0	178.7	100.0	102.9	100.0	114.3	100.0
Physical sciences								
1973	22.1	18.7	16.3	19.8	5.9	21.3	6.3	17.5
1975	23.6	17.6	16.9	18.7	6.4	20.8	6.4	16.1
1977	25.0	17.2	16.3	19.2	7.9	21.3	6.8	15.6
1979	24.6	15.9	15.4	17.1	7.5	18.3	7.8	15.9
1981	25.3	15.2	16.3	16.2	8.0	17.1	8.6	16.3
1983	25.1	14.3	16.1	15.3	7.7	15.9	9.1	16.7
1985	27.0	14.2	17.7	15.4	9.4	16.8	10.3	16.9
1987	27.2	13.9	20.3	14.1	10.2	15.3	11.6	16.5
1989	27.7	13.4	20.8	13.7	10.9	15.1	12.4	15.7
1991	27.7	13.1	20.8	13.3	10.6	14.4	12.2	14.4
1993	28.6	13.4	20.0	13.3	12.0	15.0	12.3	13.6
1995	29.4	13.5	20.6	13.4	12.6	15.2	11.8	13.1
1997	30.2	13.0	21.8	13.2	12.7	14.4	11.3	12.8
1999	30.9	12.9	21.6	12.8	12.2	13.3	11.3	12.3
2001	30.4	12.4	21.0	12.2	11.9	12.7	11.8	11.8
2003	31.5	12.2	22.0	12.3	12.6	12.2	13.5	11.8
Mathematics								
1973	9.7	8.2	6.8	8.3	1.5	5.4	0.7	1.9
1975	11.0	8.2	7.5	8.2	1.5	4.7	0.6	1.6
1977	11.7	8.0	6.8	8.0	1.8	4.9	0.8	1.8
1979	12.2	7.9	6.9	7.7	2.1	5.0	0.8	1.7
1981	12.4	7.4	6.8	6.8	1.9	4.2	0.8	1.4
1983	12.9	7.3	7.2	6.9	2.0	4.0	0.8	1.5
1985	13.6	7.1	7.6	6.6	2.7	4.8	1.0	1.6
1987	13.8	7.1	9.7	6.7	3.2	4.7	1.1	1.6
1989	14.5	7.0	10.2	6.8	3.5	4.8	1.3	1.6
1991	15.2	7.2	10.7	6.9	3.5	4.8	1.4	1.6
1993	15.5	7.2	9.5	6.3	3.4	4.2	1.4	1.6
1995	14.6	6.7	9.4	6.1	3.3	3.9	1.5	1.6
1997	15.6	6.7	10.1	6.2	3.5	4.0	1.4	1.6
1999	15.2	6.3	9.9	5.9	2.9	3.2	1.3	1.4
2001	14.9	6.1	9.8	5.7	3.3	3.5	1.4	1.4
2003	15.4	6.0	9.7	5.4	3.8	3.7	1.8	1.6
Computer sciences								
1973	NA	NA	NA	NA	NA	NA	0.7	1.8
1975	NA	NA	NA	NA	NA	NA	0.7	1.9
1977	NA	NA	NA	NA	NA	NA	0.7	1.7
1979	0.1	0.1	0.1	0.1	0.0	0.1	0.8	1.7
1981	0.3	0.2	0.3	0.3	0.1	0.2	1.1	2.1
1983	0.5	0.3	0.4	0.3	0.2	0.4	1.4	2.5
1985	0.8	0.4	0.6	0.5	0.4	0.7	2.1	3.4

Appendix table 5-36

(Page 2 of 3)

Estimates of academic S&E doctoral researchers and graduate research assistants, by degree field and work activity: 1973–2003

Field	All academic employment		Researchers		Research as primary activity		Research assistants	
	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution
1987	1.1	0.5	1.0	0.7	0.7	1.0	2.8	4.0
1989	1.5	0.7	1.3	0.9	0.8	1.1	3.3	4.2
1991	2.0	0.9	1.7	1.1	1.1	1.4	3.6	4.2
1993	2.5	1.2	2.0	1.3	0.9	1.1	3.8	4.2
1995	3.1	1.4	2.4	1.6	1.0	1.3	3.9	4.4
1997	3.3	1.4	2.4	1.5	1.1	1.2	4.0	4.6
1999	3.7	1.5	2.6	1.6	1.1	1.2	4.9	5.4
2001	3.8	1.5	2.6	1.5	1.3	1.4	6.4	6.4
2003	5.2	2.0	3.9	2.2	1.9	1.8	7.5	6.6
Earth, atmospheric, and ocean sciences								
1973	3.4	2.9	2.5	3.0	0.7	2.5	2.6	7.1
1975	3.9	2.9	2.8	3.1	0.8	2.7	2.8	7.1
1977	4.2	2.9	2.9	3.4	1.0	2.7	3.2	7.4
1979	4.2	2.7	2.7	3.0	1.0	2.4	3.6	7.3
1981	4.6	2.7	3.2	3.2	1.4	2.9	3.5	6.6
1983	4.8	2.7	3.3	3.1	1.5	3.0	3.5	6.4
1985	5.2	2.8	3.7	3.2	1.6	2.9	3.7	6.1
1987	5.6	2.8	4.6	3.2	2.1	3.2	3.6	5.2
1989	5.9	2.8	4.9	3.2	2.4	3.3	4.2	5.3
1991	6.0	2.9	5.1	3.3	2.5	3.4	4.4	5.2
1993	6.4	3.0	5.0	3.3	2.7	3.4	4.7	5.2
1995	6.4	3.0	5.1	3.3	2.6	3.1	4.7	5.2
1997	7.3	3.2	5.6	3.4	2.9	3.2	4.3	4.9
1999	7.8	3.2	5.6	3.4	2.9	3.2	4.2	4.7
2001	8.2	3.3	6.3	3.6	3.1	3.3	4.2	4.2
2003	8.8	3.4	6.5	3.7	3.6	3.5	4.6	4.0
Life sciences								
1973	34.9	29.5	26.0	31.6	12.8	46.0	9.4	26.2
1975	39.4	29.4	29.0	32.0	14.5	47.0	11.3	28.2
1977	42.6	29.3	28.7	33.7	16.6	44.7	13.0	29.8
1979	47.0	30.3	32.1	35.6	19.7	47.6	15.4	31.3
1981	51.3	30.7	37.1	36.8	23.2	49.9	16.3	30.9
1983	54.8	31.1	38.3	36.6	24.3	49.7	16.5	30.0
1985	58.7	30.8	41.4	35.9	27.1	48.4	17.9	29.3
1987	61.2	31.3	48.8	33.9	31.5	47.3	20.2	28.7
1989	64.8	31.3	51.8	34.1	33.8	46.7	23.1	29.3
1991	66.9	31.8	53.3	34.1	34.5	46.7	25.8	30.3
1993	68.2	31.9	51.8	34.5	36.0	44.9	28.0	31.1
1995	71.6	32.9	53.8	35.1	37.7	45.3	29.2	32.5
1997	77.3	33.2	57.9	35.2	40.5	45.7	28.6	32.5
1999	81.9	34.1	60.8	36.2	43.2	47.2	28.9	31.7
2001	84.3	34.3	63.1	36.6	43.7	46.6	31.1	31.2
2003	89.2	34.5	65.1	36.4	46.4	45.1	35.5	31.1
Psychology								
1973	12.2	10.4	7.3	8.9	2.0	7.3	1.9	5.4
1975	14.8	11.0	8.5	9.4	2.2	7.1	2.2	5.5
1977	16.2	11.1	7.7	9.1	2.8	7.5	2.3	5.3
1979	17.7	11.4	8.3	9.2	3.4	8.3	2.5	5.2
1981	20.1	12.0	9.9	9.8	4.1	8.8	2.9	5.5
1983	21.0	11.9	10.5	10.0	4.4	8.9	3.0	5.4
1985	23.1	12.1	10.7	9.3	4.6	8.2	3.1	5.0
1987	23.7	12.1	14.3	9.9	5.2	7.8	3.2	4.6
1989	25.0	12.1	14.3	9.5	5.9	8.2	3.8	4.9
1991	25.2	12.0	15.7	10.0	6.2	8.4	4.2	5.0
1993	25.0	11.7	14.9	9.9	6.7	8.3	4.6	5.1
1995	26.1	12.0	15.6	10.1	7.4	8.9	4.6	5.1
1997	27.3	11.7	16.1	9.8	8.0	9.0	4.8	5.4
1999	29.0	12.1	17.2	10.2	8.6	9.5	4.8	5.3
2001	30.4	12.4	18.2	10.5	8.7	9.3	5.0	5.0
2003	31.3	12.1	18.9	10.6	10.0	9.7	5.6	4.9

Appendix table 5-36

(Page 3 of 3)

Estimates of academic S&E doctoral researchers and graduate research assistants, by degree field and work activity: 1973–2003

Field	All academic employment		Researchers		Research as primary activity		Research assistants	
	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution	Thousands	Percent distribution
Social sciences								
1973	23.4	19.8	14.3	17.4	2.8	10.2	4.0	11.1
1975	28.0	20.9	16.9	18.6	3.2	10.2	4.8	12.0
1977	31.1	21.4	13.8	16.2	4.1	11.1	4.9	11.2
1979	33.6	21.6	14.7	16.3	4.2	10.1	5.2	10.6
1981	36.9	22.1	17.6	17.5	4.5	9.7	5.2	9.8
1983	38.8	22.0	17.8	17.0	4.9	10.1	5.0	9.2
1985	41.9	22.0	20.9	18.2	5.7	10.2	5.1	8.3
1987	42.1	21.5	28.5	19.8	7.5	11.3	5.5	7.8
1989	44.5	21.5	30.5	20.1	8.2	11.3	6.2	7.9
1991	44.8	21.3	31.1	19.8	8.4	11.3	6.8	8.0
1993	44.4	20.8	29.3	19.5	10.7	13.4	7.4	8.2
1995	42.5	19.5	28.1	18.3	9.8	11.8	7.2	8.0
1997	44.9	19.3	29.8	18.1	9.8	11.1	6.7	7.7
1999	46.2	19.2	30.9	18.4	11.1	12.1	7.2	7.9
2001	46.9	19.1	31.4	18.2	11.7	12.4	7.8	7.8
2003	48.6	18.8	31.9	17.9	13.0	12.7	8.4	7.3
Engineering								
1973	12.4	10.5	9.0	11.0	2.1	7.4	10.4	29.0
1975	13.4	10.0	9.0	10.0	2.3	7.5	11.0	27.6
1977	14.8	10.1	8.9	10.5	2.9	7.9	11.6	26.6
1979	15.8	10.2	9.8	10.9	3.4	8.2	12.9	26.3
1981	16.1	9.7	9.5	9.5	3.3	7.2	14.4	27.3
1983	18.1	10.3	11.2	10.7	3.9	7.9	15.6	28.3
1985	19.9	10.5	12.5	10.8	4.4	7.9	17.9	29.4
1987	21.2	10.8	16.8	11.6	6.2	9.3	22.2	31.6
1989	22.8	11.0	17.6	11.6	6.9	9.5	24.6	31.1
1991	22.8	10.8	18.2	11.6	7.2	9.7	26.8	31.5
1993	23.1	10.8	17.5	11.7	7.9	9.8	28.0	31.0
1995	23.8	10.9	18.5	12.1	8.7	10.5	27.1	30.1
1997	26.6	11.4	20.9	12.7	10.1	11.4	26.9	30.6
1999	25.5	10.6	19.4	11.6	9.4	10.3	28.7	31.4
2001	26.6	10.8	20.2	11.7	10.1	10.7	32.2	32.2
2003	28.3	10.9	20.7	11.6	11.6	11.3	37.4	32.7

NA = not available

NOTES: Researchers are those reporting basic or applied research, development, or design as either primary or secondary work activity. Graduate research assistants are full-time students with research assistantships as primary mechanism of support. Detail may not add to total because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations; and Survey of Graduate Students and Postdoctorates in Science and Engineering, special tabulations.

Academic S&E doctorate holders with federal support, by degree field, type of position, and work activity: 1973–2003

(Percent)

Field, position, and work activity	1973	1975	1977	1979	1981	1983	1985 ^a	1987	1989	1991	1993 ^a	1995 ^a	1997 ^a	1999	2001	2003
All fields																
Research as primary activity.....	78.5	79.0	75.4	75.2	80.6	79.9	73.5	79.9	79.8	80.7	67.2	69.1	66.9	73.9	73.9	72.0
Research as secondary activity.....	38.3	35.6	37.5	35.3	35.3	40.5	28.9	38.7	40.7	40.0	23.9	27.5	26.4	36.6	36.2	35.8
Full-time faculty.....	42.0	39.6	38.2	36.2	38.8	41.7	34.3	45.6	46.6	48.0	32.9	35.7	34.7	43.1	43.2	44.6
Full-time other.....	60.2	58.8	68.1	58.3	58.5	59.4	49.8	60.6	60.9	58.8	42.5	43.1	47.0	49.9	49.1	47.9
Postdocs.....	87.7	86.3	86.0	82.1	86.3	82.2	78.5	82.1	83.5	84.5	83.1	80.1	74.1	80.3	74.3	78.1
Physical sciences																
Research as primary activity.....	83.1	82.4	79.2	79.4	88.9	84.7	79.5	86.2	87.3	88.3	75.3	77.4	75.6	83.0	83.8	85.3
Research as secondary activity.....	41.7	39.4	39.2	37.7	42.5	49.3	34.4	48.9	52.6	49.5	35.4	38.3	34.8	53.1	46.3	45.5
Full-time faculty.....	43.7	39.3	39.9	38.2	44.6	46.5	37.4	49.9	53.5	52.9	37.7	41.6	39.2	50.4	47.9	52.0
Full-time other.....	42.2	64.1	75.9	72.4	70.3	72.1	66.1	72.6	72.1	72.0	61.1	52.8	63.8	68.8	64.1	61.1
Postdocs.....	68.3	90.2	89.4	81.9	90.2	87.3	84.4	90.5	86.8	87.6	87.1	84.6	80.4	82.5	82.4	75.8
Mathematics																
Research as primary activity.....	52.7	50.1	42.3	44.0	52.7	71.0	51.5	66.8	68.1	74.5	40.7	45.9	48.2	60.6	59.5	59.2
Research as secondary activity.....	26.6	18.2	20.4	20.8	21.6	32.6	19.8	23.8	28.4	26.3	16.5	17.0	15.5	25.4	32.9	25.2
Full-time faculty.....	26.8	18.8	18.0	20.4	21.0	29.9	21.4	30.4	32.8	34.0	18.3	21.1	19.4	28.3	30.1	31.0
Full-time other.....	33.6	33.5	46.9	54.6	30.1	43.4	29.1	47.8	52.8	67.2	40.6	34.6	43.9	38.4	48.0	24.1
Postdocs.....	48.8	35.8	55.1	43.2	56.3	66.3	48.5	34.4	53.4	80.4	—	45.3	35.6	54.7	61.9	65.9
Computer sciences																
Research as primary activity.....	NA	NA	NA	34.8	29.7	44.6	45.0	61.7	52.4	49.4	39.9	43.2	41.1	55.6	47.2	48.9
Research as secondary activity.....	NA	NA	NA	58.3	19.4	84.6	57.2	66.3	74.9	71.2	64.7	75.8	59.4	85.0	82.4	77.8
Full-time faculty.....	NA	NA	NA	23.3	35.8	30.1	19.7	58.7	31.4	27.7	29.0	28.6	43.3	49.5	44.1	44.2
Full-time other.....	NA	NA	NA	25.0	26.6	38.1	38.0	58.1	52.8	48.2	37.7	40.7	38.8	54.1	46.8	49.7
Postdocs.....	NA	NA	NA	—	25.0	67.9	80.6	79.7	47.1	67.7	59.1	62.9	63.1	74.9	47.2	47.7
Postdocs.....	NA	NA	NA	57.1	100.0	100.0	0.0	88.2	100.0	—	100.0	78.0	97.2	100.0	100.0	95.8
Earth, atmospheric, and ocean sciences																
Research as primary activity.....	88.4	82.0	82.0	78.4	89.0	86.3	85.7	88.4	90.4	89.9	81.9	85.7	84.2	79.8	84.8	81.2
Research as secondary activity.....	39.0	41.4	37.9	46.3	41.3	47.8	42.0	49.2	52.9	55.5	37.1	38.9	41.2	63.2	60.7	60.7
Full-time faculty.....	42.2	43.0	37.8	40.0	45.1	50.3	44.8	54.6	60.2	61.4	45.5	48.6	52.3	61.7	62.3	62.9
Full-time other.....	58.7	79.9	80.3	75.2	68.6	78.9	78.4	79.5	80.9	90.7	67.9	72.0	71.0	74.5	70.6	63.9
Postdocs.....	87.5	75.0	95.2	96.9	91.9	90.7	96.6	91.7	90.6	73.4	83.3	91.0	85.8	74.3	91.8	91.4
Life sciences																
Research as primary activity.....	83.4	85.0	83.0	82.2	85.4	84.6	80.0	87.0	86.7	86.5	76.2	75.3	73.1	79.9	78.9	76.8
Research as secondary activity.....	48.8	47.4	50.1	44.2	45.9	51.4	39.2	50.6	50.9	50.8	34.8	36.4	34.8	45.1	43.7	46.2
Full-time faculty.....	57.1	56.4	54.9	51.4	55.6	57.8	50.5	63.4	62.1	63.7	48.6	49.0	47.6	55.1	55.5	56.9
Full-time other.....	68.1	70.9	72.1	64.8	68.5	68.5	58.4	71.0	74.1	67.2	45.8	46.3	46.2	49.9	47.4	47.7
Postdocs.....	88.8	87.7	88.4	84.6	86.0	82.6	78.3	82.1	86.8	84.4	84.1	81.9	77.7	82.6	77.6	81.3
Psychology																
Research as primary activity.....	72.0	70.1	70.2	72.5	77.3	70.4	66.8	70.5	73.0	70.8	63.8	62.4	65.0	68.2	72.2	68.8
Research as secondary activity.....	35.2	34.0	29.0	24.9	23.8	26.2	22.2	23.9	29.2	27.0	15.9	19.0	16.7	24.8	26.3	25.2
Full-time faculty.....	36.4	34.1	30.6	28.3	27.5	27.3	23.6	28.3	34.0	32.9	25.2	25.1	24.9	31.5	32.9	34.2
Full-time other.....	48.1	41.6	65.4	46.3	52.3	40.3	32.7	37.1	39.6	36.3	23.8	30.7	28.3	30.4	38.2	35.5
Postdocs.....	84.9	86.4	82.5	86.8	92.0	84.2	70.8	88.1	66.3	95.8	71.7	71.4	71.8	71.8	59.2	71.8

Academic S&E doctorate holders with federal support, by degree field, type of position, and work activity: 1973–2003

(Percent)

Field, position, and work activity	1973	1975	1977	1979	1981	1983	1985 ^a	1987	1989	1991	1993 ^a	1995 ^a	1997 ^a	1999	2001	2003
Social sciences.....	25.5	23.7	23.3	20.4	21.8	23.7	17.2	27.2	27.7	28.4	14.2	16.1	15.2	22.9	21.5	21.9
Research as primary activity.....	61.4	61.1	51.4	53.6	53.8	55.8	44.5	50.3	49.8	51.2	33.4	37.2	30.1	44.3	43.4	42.6
Research as secondary activity.....	21.7	20.3	23.4	21.5	18.6	24.3	14.9	24.9	25.8	25.4	8.3	12.2	11.6	18.0	17.0	16.4
Full-time faculty	25.2	23.7	22.6	19.0	21.2	22.5	16.2	27.1	27.4	27.8	13.4	15.4	14.8	22.5	21.3	21.8
Full-time other.....	36.3	31.6	35.3	37.3	32.7	34.0	26.6	36.2	33.8	32.7	22.1	22.6	22.7	29.3	29.4	28.7
Postdocs	57.6	54.6	54.7	84.9	47.9	64.6	54.7	27.4	57.6	52.5	88.1	68.5	33.9	65.0	35.8	41.8
Engineering	53.5	50.6	51.1	49.1	51.0	54.7	43.0	57.1	56.3	63.2	42.6	49.9	49.7	56.9	56.8	57.3
Research as primary activity.....	80.6	81.4	78.0	72.4	80.2	83.9	74.5	82.0	78.1	86.5	69.4	74.5	70.8	75.7	77.2	74.8
Research as secondary activity.....	51.9	50.5	53.7	52.8	56.8	54.4	38.0	54.8	57.1	58.9	34.3	43.1	41.0	51.0	52.6	52.0
Full-time faculty	52.5	49.9	49.3	49.5	49.8	54.7	42.2	56.0	55.2	62.9	40.9	48.4	46.4	55.2	56.7	55.9
Full-time other.....	65.5	67.3	86.6	53.0	60.7	63.1	44.3	76.4	71.2	66.8	59.5	56.7	67.9	64.2	61.8	67.5
Postdocs	84.7	84.3	74.7	51.1	98.9	82.7	91.4	74.8	76.0	90.0	65.7	72.7	62.1	80.4	56.8	73.8

— = too few cases; NA = not available

^aNot comparable with other years and understates degree of federal support by asking whether work performed during week of April 15 was supported by government. In other years, question pertains to work conducted over course of year.

NOTES: Full-time faculty includes full, associate, and assistant professors plus instructors. Other full-time positions include nonfaculty appointments such as research associates, adjunct appointments, lecturers, and administrative positions. Research includes basic or applied research, development, and design.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-38

(Page 1 of 3)

S&E doctorate holders employed in academia with federal support, by degree field, years since doctorate, and type of position: 1973–2003

(Percent)

Field	1–3 years since doctorate				4–7 years since doctorate			
	All positions	Full-time faculty	Other full time	Postdocs	All positions	Full-time faculty	Other full time	Postdocs
All fields								
1973	44.1	32.9	72.5	87.1	44.6	42.4	65.8	91.1
1975	44.2	31.1	58.3	87.8	42.5	40.0	66.2	83.2
1977	44.5	28.8	61.2	87.0	42.2	37.8	71.6	85.3
1979	47.2	29.6	58.9	86.6	43.0	37.4	67.3	83.1
1981	51.0	30.8	63.1	87.9	46.5	41.2	64.8	86.9
1983	50.2	33.7	59.0	86.1	50.1	45.3	68.1	84.8
1985 ^a	43.2	23.9	59.3	79.1	42.4	36.2	63.3	81.0
1987	53.3	36.7	56.1	82.0	54.8	49.7	71.6	84.2
1989	57.2	38.7	58.7	84.7	57.8	53.5	70.0	89.1
1991	53.6	38.3	56.6	83.8	57.4	53.4	66.6	88.7
1993 ^a	43.5	20.8	43.7	80.7	41.1	34.0	46.8	87.3
1995 ^a	47.0	23.2	40.1	78.5	43.9	36.1	52.0	86.0
1997 ^a	45.3	21.0	42.4	74.1	41.9	33.7	49.6	78.5
1999	52.8	28.8	45.5	79.5	47.4	41.4	46.6	83.3
2001	48.4	29.4	45.5	73.4	46.1	39.8	50.7	78.6
2003	48.6	30.5	45.5	77.6	47.6	42.4	55.4	80.8
Physical sciences								
1973	58.4	31.2	78.3	88.5	44.8	39.5	72.1	98.5
1975	64.1	27.9	60.7	93.2	43.8	36.6	77.3	85.1
1977	63.2	28.9	95.7	88.5	51.6	40.5	77.5	92.4
1979	59.1	25.5	73.7	84.7	52.0	39.0	72.1	91.7
1981	69.3	25.2	94.3	88.1	57.9	49.4	84.5	97.9
1983	70.4	33.8	82.7	88.2	66.2	56.3	85.3	84.8
1985 ^a	64.3	18.7	86.6	84.6	50.8	35.7	78.7	91.4
1987	80.9	66.7	69.9	90.2	68.7	56.0	97.1	93.1
1989	77.9	49.2	82.1	88.0	72.4	61.9	89.0	90.6
1991	69.9	44.1	78.8	87.2	67.2	55.1	88.5	100.0
1993 ^a	63.1	21.3	64.9	84.5	58.2	43.9	70.0	94.5
1995 ^a	62.8	21.0	41.9	84.1	53.9	37.8	60.2	86.7
1997 ^a	64.2	30.0	71.4	77.7	53.4	41.2	67.9	96.5
1999	68.0	39.3	69.9	80.5	57.0	46.7	65.5	89.4
2001	62.2	31.0	55.4	80.9	54.1	39.4	73.9	83.7
2003	59.2	39.1	42.4	78.4	51.1	44.1	61.5	67.1
Mathematics								
1973	17.5	16.3	58.5	38.7	29.0	29.4	15.4	100.0
1975	14.5	13.0	37.6	28.3	18.9	18.5	0.0	57.9
1977	16.2	12.2	45.9	56.4	19.2	17.6	82.0	52.2
1979	24.8	22.5	52.9	42.5	32.3	30.2	64.9	46.9
1981	10.8	9.5	0.0	44.1	29.7	27.6	62.7	81.5
1983	31.8	29.8	7.1	73.4	39.8	39.8	51.3	100.0
1985 ^a	14.7	14.1	—	34.6	27.0	26.8	26.7	100.0
1987	15.6	7.4	81.8	37.6	34.9	35.5	7.3	10.3
1989	29.1	24.9	53.8	52.4	39.0	39.1	78.6	100.0
1991	39.8	35.8	54.9	80.4	28.3	28.6	40.9	—
1993 ^a	15.7	14.8	0.0	100.0	15.2	14.0	100.0	—
1995 ^a	17.7	13.4	0.0	40.0	25.6	19.6	42.4	70.6
1997 ^a	14.9	3.5	29.1	32.9	16.7	14.9	0.0	42.2
1999	36.4	24.0	0.0	58.7	32.2	33.5	0.0	47.2
2001	34.6	21.6	34.6	56.3	42.2	38.6	62.4	100.0
2003	37.0	25.7	24.3	67.7	33.9	36.2	0.0	54.1
Computer sciences								
1973	NA	NA	NA	NA	NA	NA	NA	NA
1975	NA	NA	NA	NA	NA	NA	NA	NA
1977	NA	NA	NA	NA	NA	NA	NA	NA
1979	34.8	25.0	—	57.1	—	—	—	—
1981	27.7	24.1	25.0	100.0	52.4	52.4	—	—
1983	45.7	35.1	60.0	100.0	43.5	40.4	92.3	—

Appendix table 5-38

(Page 2 of 3)

S&E doctorate holders employed in academia with federal support, by degree field, years since doctorate, and type of position: 1973–2003

(Percent)

Field	1–3 years since doctorate				4–7 years since doctorate			
	All positions	Full-time faculty	Other full time	Postdocs	All positions	Full-time faculty	Other full time	Postdocs
1985 ^a	54.1	46.4	77.2	0.0	36.7	31.0	100.0	—
1987.....	47.2	46.3	42.0	100.0	73.2	66.3	100.0	0.0
1989.....	33.0	29.3	50.0	100.0	70.8	78.0	35.7	100.0
1991.....	23.1	23.1	25.1	—	66.2	63.9	100.0	100.0
1993 ^a	44.7	39.5	100.0	100.0	30.7	30.9	27.3	100.0
1995 ^a	38.2	31.4	61.1	75.9	38.1	38.3	23.9	—
1997 ^a	40.5	29.7	74.3	97.0	40.4	37.7	75.6	—
1999.....	59.7	50.6	77.5	100.0	56.6	56.5	85.9	—
2001.....	31.4	25.9	44.2	100.0	49.2	47.3	53.2	—
2003.....	41.7	32.6	22.2	95.8	43.6	40.8	59.2	—
Earth, atmospheric, and ocean sciences								
1973.....	53.7	44.0	73.1	87.1	53.4	50.6	77.5	100.0
1975.....	50.7	38.4	85.3	74.2	54.0	49.8	97.0	100.0
1977.....	44.3	22.5	60.5	94.4	46.9	38.3	82.1	100.0
1979.....	67.2	41.3	97.3	96.7	49.6	43.1	72.3	100.0
1981.....	66.1	43.2	79.7	100.0	57.2	53.3	72.7	0.0
1983.....	61.8	36.7	75.7	92.8	64.5	59.5	100.0	66.7
1985 ^a	56.0	33.4	83.9	96.4	59.6	50.6	81.2	100.0
1987.....	64.2	42.3	87.9	89.6	71.1	61.9	88.9	100.0
1989.....	70.4	52.8	88.5	90.1	81.2	78.0	92.9	93.8
1991.....	76.0	61.7	100.0	77.4	76.6	75.3	100.0	64.1
1993 ^a	68.2	33.0	97.8	74.2	59.9	50.2	72.6	100.0
1995 ^a	65.4	35.8	87.4	88.0	66.4	58.9	86.2	100.0
1997 ^a	67.3	35.0	74.7	94.2	57.1	49.4	70.7	69.4
1999.....	61.7	42.9	89.7	79.8	65.3	62.7	75.6	55.5
2001.....	80.7	64.0	84.2	90.0	54.1	48.7	69.3	95.6
2003.....	73.8	49.1	82.8	89.4	67.9	68.8	70.9	100.0
Life sciences								
1973.....	60.8	48.3	77.0	89.0	59.7	57.3	75.1	89.2
1975.....	61.8	46.4	72.5	87.6	60.1	57.6	76.2	87.5
1977.....	61.6	38.1	70.4	88.9	59.6	56.6	73.3	90.2
1979.....	65.9	40.6	75.8	85.9	57.3	51.4	76.5	84.2
1981.....	71.8	51.7	76.5	88.1	64.0	58.8	70.8	85.7
1983.....	68.2	52.8	65.1	84.7	67.1	64.5	72.6	83.7
1985 ^a	59.6	34.1	67.2	78.9	61.1	55.6	72.3	81.7
1987.....	70.2	53.5	73.8	82.1	71.4	68.3	81.0	83.0
1989.....	74.5	50.2	79.3	89.1	71.9	67.5	79.1	89.3
1991.....	68.1	49.9	60.0	83.0	70.6	66.8	79.2	86.3
1993 ^a	61.2	32.2	44.8	81.9	55.7	46.4	52.0	86.7
1995 ^a	58.5	30.3	35.3	80.3	54.0	43.9	47.4	87.4
1997 ^a	58.3	23.0	42.2	77.5	52.3	42.4	48.4	78.8
1999.....	65.0	35.0	46.2	82.4	57.2	47.2	49.3	83.0
2001.....	59.2	34.2	39.0	76.8	56.4	48.9	49.5	78.8
2003.....	62.4	36.7	52.3	81.7	57.2	49.9	57.5	83.0
Psychology								
1973.....	34.3	28.5	59.7	95.3	37.8	36.9	52.1	71.4
1975.....	35.0	25.5	53.7	88.5	35.3	34.9	32.8	71.2
1977.....	35.3	26.8	71.7	86.0	31.5	27.9	60.5	73.0
1979.....	35.2	22.5	22.2	95.5	39.3	31.4	76.5	87.6
1981.....	46.5	33.2	41.6	93.4	34.7	28.6	54.5	88.2
1983.....	31.2	19.8	34.2	89.3	32.3	28.2	37.1	87.2
1985 ^a	30.6	15.6	44.5	70.1	29.2	26.2	38.7	72.5
1987.....	37.5	28.5	28.8	82.7	33.2	25.6	40.3	97.9
1989.....	41.7	34.6	36.1	64.9	36.1	36.7	33.1	63.1
1991.....	35.9	23.9	24.3	100.0	38.8	38.6	24.8	86.9
1993 ^a	21.6	12.0	27.5	61.6	23.2	24.6	15.5	48.2
1995 ^a	33.5	17.5	40.6	63.5	26.1	21.8	36.0	82.1
1997 ^a	34.5	24.2	19.0	70.9	29.5	22.3	36.4	77.3

Appendix table 5-38

(Page 3 of 3)

S&E doctorate holders employed in academia with federal support, by degree field, years since doctorate, and type of position: 1973–2003

(Percent)

Field	1–3 years since doctorate				4–7 years since doctorate			
	All positions	Full-time faculty	Other full time	Postdocs	All positions	Full-time faculty	Other full time	Postdocs
1999	33.4	22.4	29.9	63.6	35.6	34.7	23.8	100.0
2001	35.5	20.0	41.7	64.1	34.9	32.6	42.7	45.6
2003	31.2	26.6	28.8	61.1	37.5	32.4	46.9	100.0
Social sciences								
1973	24.7	23.7	53.7	23.9	29.0	28.7	34.1	93.1
1975	23.1	22.5	29.0	61.7	26.2	26.2	42.4	39.2
1977	24.8	24.2	12.3	61.4	24.6	23.2	56.3	48.0
1979	26.6	22.8	37.6	97.5	20.8	19.2	52.2	70.8
1981	20.4	16.3	48.7	56.0	24.3	24.3	25.2	60.0
1983	28.2	23.6	49.0	77.9	28.1	23.6	57.5	93.8
1985 ^a	15.6	12.3	27.8	44.4	19.3	15.7	51.0	41.0
1987	22.5	20.9	34.5	21.4	29.9	27.7	54.0	0.0
1989	25.6	24.7	24.3	41.9	33.2	31.6	51.4	83.9
1991	21.7	19.5	38.8	31.7	36.6	33.8	44.2	100.0
1993 ^a	11.2	7.2	25.4	88.2	14.9	14.4	21.9	100.0
1995 ^a	15.9	10.7	28.8	80.8	17.8	16.0	41.8	49.8
1997 ^a	14.1	10.9	26.8	33.7	17.4	15.6	26.3	57.7
1999	21.1	15.2	26.1	77.1	22.8	21.7	31.3	48.1
2001	20.5	21.2	24.0	41.8	21.2	20.3	28.0	63.3
2003	18.3	14.7	34.5	38.6	22.7	22.3	32.0	49.8
Engineering								
1973	50.8	45.2	74.2	87.1	50.7	49.9	78.6	66.7
1975	53.7	48.9	65.8	83.8	54.4	53.1	82.3	100.0
1977	55.2	47.2	84.8	72.9	52.9	52.3	64.8	64.9
1979	55.5	48.5	71.9	99.4	55.1	58.8	33.8	16.9
1981	54.4	43.2	100.0	100.0	65.6	61.9	83.9	100.0
1983	47.1	36.7	58.2	98.3	64.3	62.2	99.0	100.0
1985 ^a	43.9	37.8	66.1	94.5	47.6	46.3	66.4	0.0
1987	53.3	43.7	79.2	75.7	65.5	64.2	97.6	100.0
1989	56.0	48.9	71.9	73.3	70.8	68.6	91.8	100.0
1991	66.6	62.1	67.7	89.9	73.2	73.0	79.7	100.0
1993 ^a	43.4	32.1	65.1	68.7	51.2	49.4	65.9	70.3
1995 ^a	51.1	38.5	50.3	72.6	62.1	60.3	72.5	86.5
1997 ^a	50.0	35.5	66.4	66.3	51.3	48.4	62.5	60.5
1999	58.5	40.0	70.9	78.1	55.5	56.4	44.8	94.2
2001	54.9	49.1	77.0	57.1	58.3	59.2	54.9	74.2
2003	56.1	47.7	60.5	71.2	64.3	61.6	72.7	100.0

— = too few cases; NA = not available

*Not comparable with other years and understates degree of federal support by asking whether work performed during week of April 15 was supported by government. In other years, question pertains to work conducted over course of year.

NOTES: Recent doctorate-holders defined as having earned doctorate within either 3 years or 4–7 years preceding survey year. Full-time faculty includes full, associate, and assistant professors plus instructors. Other full-time positions include nonfaculty appointments such as research associates, adjunct appointments, lecturers, and administrative positions.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations.

Appendix table 5-39

Broad and detailed fields for publications output data

Clinical medicine	Biology	Mathematics
Addictive diseases	Agriculture and food science	Applied mathematics
Allergy	Botany	General mathematics
Anesthesiology	Dairy and animal science	Miscellaneous mathematics
Arthritis and rheumatism	Ecology	Probability and statistics
Cancer	Entomology	
Cardiovascular system	General biology	Psychology
Dentistry	General zoology	Behavioral and comparative psychology
Dermatology and venereal disease	Marine and hydrobiology	Clinical psychology
Endocrinology	Miscellaneous biology	Developmental and child psychology
Environmental and occupational health	Miscellaneous zoology	Experimental psychology
Fertility		General psychology
Gastroenterology	Chemistry	Human factors
General and internal medicine	Analytical chemistry	Miscellaneous psychology
Geriatrics	Applied chemistry	Psychoanalysis
Hematology	General chemistry	Social psychology
Immunology	Inorganic and nuclear chemistry	
Miscellaneous clinical	Organic chemistry	Social sciences
Nephrology	Physical chemistry	Anthropology and archaeology
Neurology and neurosurgery	Polymers	Area studies
Obstetrics and gynecology		Criminology
Ophthalmology	Physics	Demography
Orthopedics	Acoustics	Economics
Otorhinolaryngology	Applied physics	General social sciences
Pathology	Chemical physics	Geography and regional science
Pediatrics	Fluids and plasmas	International relations
Pharmacology	General physics	Miscellaneous social sciences
Pharmacy	Miscellaneous physics	Planning and urban studies
Psychiatry	Nuclear and particle physics	Political science and public administration
Radiology and nuclear medicine	Optics	Science studies
Respiratory system	Solid state physics	Sociology
Surgery		
Tropical medicine	Earth and space sciences	Health sciences
Urology	Astronomy and astrophysics	Gerontology and aging
Veterinary medicine	Earth and planetary science	Health policy and services
	Environmental science	Nursing
Biomedical research	Geology	Public health
Anatomy and morphology	Meteorology and atmospheric sciences	Rehabilitation
Biochemistry and molecular biology	Oceanography and limnology	Social studies of medicine
Biomedical engineering		Speech/language pathology and audiology
Biophysics	Engineering and technology	
Cell biology, cytology, and histology	Aerospace technology	Professional
Embryology	Chemical engineering	Communication
Genetics and heredity	Civil engineering	Education
General biomedical research	Computers	Information and library science
Microbiology	Electrical and electronics engineering	Law
Microscopy	General engineering	Management and business
Miscellaneous biomedical research	Industrial engineering	Miscellaneous professional fields
Nutrition and dietetics	Materials science	Social work
Parasitology	Mechanical engineering	
Physiology	Metals and metallurgy	
Virology	Miscellaneous engineering and technology	
	Nuclear technology	
	Operations research and management	

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; and iplQ, Inc.

Appendix table 5-40
S&E articles in selected journal databases: 1988–2003

Year	CAS	Compendex	Inspec	PASCAL	SCI and SSCI
1988.....	389,685	146,234	246,707	NA	466,419
1989.....	397,158	169,249	247,765	NA	497,102
1990.....	394,945	208,776	257,580	488,344	508,795
1991.....	453,640	240,124	250,189	528,456	515,530
1992.....	430,250	213,363	252,129	574,906	547,617
1993.....	448,736	268,276	259,697	580,354	540,491
1994.....	542,514	333,420	279,674	524,509	567,204
1995.....	562,955	380,501	299,950	460,586	580,809
1996.....	579,107	406,524	320,342	476,759	593,568
1997.....	585,530	376,311	325,780	498,951	594,467
1998.....	559,009	310,497	331,147	510,692	617,762
1999.....	591,092	249,584	332,261	508,755	632,059
2000.....	573,469	240,719	333,444	500,362	632,781
2001.....	606,679	351,485	315,792	NA	649,795
2002.....	NA	NA	NA	NA	641,388
2003.....	NA	NA	NA	NA	698,726

NA = not available

CAS = Chemical Abstracts Service; Inspec = Information Service for Physics, Electronics and Computing; *SCI* = *Science Citation Index*; *SSCI* = *Social Sciences Citation Index*

NOTES: Compendex is a comprehensive database of engineering scholarly journals, trade magazines, and conference proceedings; PASCAL, a multilingual, multidisciplinary database, covers core scientific literature in science, technology, and medicine, with special emphasis on European literature.

SOURCES: American Chemical Society (ACS), CAS, <http://www.cas.org>; Elsevier Engineering Information, Inc., Compendex, <http://www.ei.org/compendex.html>, and Inspec, <http://www.ei.org/inspec.html>; Institut de l'Information Scientifique et Technique du Centre National de la Recherche Scientifique (INIST-CNRS), PASCAL, <http://www.inist.fr/en/PRODUITS/pascal.php> (to search database: <http://stneasy.cas.org>); and Thomson ISI, *SCI* and *SSCI*, <http://www.isinet.com/products/citation/>.

Appendix table 5-41
S&E articles, by region and country/economy: 1988–2003

Region and country/economy	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All countries.....	466,419	497,102	508,795	515,530	547,617	540,491	567,204	580,809	593,568	594,467	617,762	632,059	632,781	649,795	641,388	698,726
Major S&E article producers.....	353,862	377,817	389,307	397,004	422,045	421,573	442,390	455,429	467,036	468,143	487,006	497,069	496,599	512,166	501,778	546,626
United States.....	177,662	187,224	191,559	194,015	198,864	197,397	199,769	202,887	201,798	197,531	197,890	198,524	196,221	200,870	195,792	211,233
EU-15.....	134,551	145,337	149,032	152,761	166,230	166,540	179,710	185,842	193,172	195,060	205,479	209,006	208,128	211,177	204,769	220,002
Austria.....	2,241	2,675	2,690	2,756	3,047	3,051	3,177	3,477	3,618	3,880	4,172	4,210	4,259	4,526	4,405	4,906
Belgium.....	3,586	3,905	4,103	4,164	4,431	4,512	4,949	5,260	5,583	5,509	5,822	5,924	5,739	5,984	5,933	6,604
Denmark.....	3,445	3,722	3,716	3,776	4,141	4,068	4,458	4,408	4,477	4,512	4,782	4,909	4,929	4,988	4,740	5,291
Finland.....	2,789	2,981	3,071	3,211	3,438	3,603	3,974	4,134	4,354	4,523	4,564	4,872	4,878	5,098	4,873	5,202
France.....	21,409	22,686	22,937	23,518	26,172	26,225	28,266	29,309	29,755	30,061	31,809	32,097	30,960	31,317	29,928	31,971
Germany.....	29,292	31,821	32,295	32,929	35,120	34,103	36,901	38,100	39,123	40,743	43,953	43,550	43,440	43,623	41,863	44,305
Greece.....	1,239	1,518	1,397	1,598	1,736	1,759	1,974	2,068	2,265	2,407	2,666	2,705	2,892	3,329	3,373	3,770
Ireland.....	790	826	902	915	946	1,003	1,168	1,210	1,269	1,318	1,526	1,526	1,596	1,665	1,650	1,758
Italy.....	11,229	12,509	13,062	13,778	15,462	15,279	17,000	17,904	19,342	19,147	20,321	20,819	21,038	22,313	22,314	24,696
Luxembourg.....	7	11	17	15	23	22	26	31	20	33	33	34	42	46	33	46
Netherlands.....	8,581	9,736	10,176	10,106	11,060	11,360	11,961	12,330	12,438	12,779	12,756	12,642	12,466	12,602	12,517	13,475
Portugal.....	429	510	587	640	712	794	914	989	1,090	1,250	1,404	1,765	1,813	2,142	2,173	2,625
Spain.....	5,432	6,116	6,837	7,269	9,267	9,759	10,534	11,343	12,234	13,040	13,786	14,860	14,776	15,570	15,868	16,826
Sweden.....	7,573	8,126	8,172	8,139	8,273	8,547	8,972	9,284	9,697	9,677	9,967	10,129	9,815	10,314	9,829	10,237
United Kingdom.....	36,509	38,195	39,069	39,950	42,404	42,456	45,436	45,993	47,904	46,183	47,916	48,965	49,485	47,660	45,269	48,288
Japan.....	34,435	36,569	38,570	39,590	44,143	43,339	46,692	47,603	50,392	50,171	54,658	56,134	55,413	57,420	55,085	60,067
East Asia-4.....	7,214	8,687	10,146	10,638	12,807	14,297	16,220	19,097	21,675	25,381	28,980	33,405	36,837	42,699	46,132	55,324
China.....	4,619	5,411	6,285	6,186	6,956	7,566	7,821	9,261	10,070	12,530	13,807	16,197	18,142	20,978	23,609	29,186
Singapore.....	410	517	572	599	755	854	1,022	1,184	1,181	1,338	1,635	1,984	2,301	2,603	2,677	3,122
South Korea.....	771	1,035	1,170	1,361	1,759	2,184	2,931	3,806	4,728	5,636	7,075	8,386	9,386	11,037	11,745	13,746
Taiwan.....	1,414	1,724	2,119	2,492	3,337	3,693	4,446	4,846	5,696	5,878	6,463	6,838	7,008	8,082	8,100	9,270
Other regions/countries																
Other Western Europe.....	9,327	9,901	10,851	10,939	12,162	12,379	13,307	13,826	14,597	15,456	16,170	16,974	17,548	17,971	18,293	20,939
Croatia.....	na	na	na	na	17	575	508	563	614	631	589	671	704	710	657	845
Cyprus.....	15	15	17	8	22	24	24	41	54	66	61	58	60	74	85	92
Iceland.....	69	68	89	104	105	122	137	158	149	147	177	136	154	174	193	203
Norway.....	2,192	2,247	2,426	2,403	2,655	2,637	2,805	2,953	2,950	3,012	3,100	3,127	3,195	3,252	3,118	3,339
Slovenia.....	na	na	na	na	10	404	459	443	478	595	625	707	901	876	856	969
Switzerland.....	5,316	5,548	5,901	6,098	6,651	6,871	7,372	7,361	7,489	7,912	8,096	8,297	8,454	8,107	7,744	8,542
Turkey.....	507	668	750	846	1,048	1,172	1,397	1,713	2,206	2,440	2,818	3,240	3,482	4,098	5,072	6,224
Yugoslavia.....	1,211	1,330	1,641	1,447	1,621	496	514	507	568	555	605	622	513	547	460	600
All others.....	17	26	26	33	35	79	91	87	91	99	99	115	86	131	108	124
Other Asia.....	10,116	11,075	10,566	10,937	11,539	11,329	11,592	11,355	11,478	11,158	11,985	12,779	12,294	13,456	14,005	15,779
Bangladesh.....	95	99	116	104	151	153	136	170	155	146	138	168	160	177	160	204
India.....	8,882	9,744	9,200	9,517	10,100	9,763	9,928	9,591	9,736	9,419	10,066	10,589	10,047	11,076	11,538	12,774
Indonesia.....	59	86	104	89	86	103	120	133	137	146	138	172	165	207	167	178
Malaysia.....	208	241	233	260	247	293	345	373	372	339	402	493	470	494	485	520
Pakistan.....	235	263	257	315	277	349	324	339	274	258	276	300	277	282	334	368
Philippines.....	127	149	157	148	150	148	141	151	153	174	167	187	177	158	178	179
Sri Lanka.....	107	101	106	84	82	83	85	82	78	68	75	94	104	76	95	141
Thailand.....	287	272	282	298	300	317	383	338	386	415	530	558	655	727	808	1,072

S&E articles, by region and country/economy: 1988–2003

Region and country/economy	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Vietnam.....	52	66	60	65	74	67	61	102	113	120	107	112	144	158	144	216
All others.....	64	55	50	58	72	54	71	76	74	74	86	106	96	101	96	125
Eastern Europe/former USSR.....	41,597	43,697	42,836	41,218	43,214	35,976	38,199	36,390	35,074	34,259	34,680	34,421	35,844	33,686	33,901	35,067
Armenia.....	na	na	na	na	21	165	178	182	179	186	169	156	167	152	201	175
Azerbaijan.....	na	na	na	na	15	197	189	157	125	87	94	70	89	68	73	107
Bulgaria.....	1,089	1,219	1,216	1,169	1,218	1,380	1,024	963	968	977	931	900	887	784	789	829
Belarus.....	na	na	na	na	30	708	1,021	728	597	576	598	616	576	528	480	532
Czech Republic.....	2,746	2,995	3,079	2,881	3,132	3,308	2,179	1,993	2,249	2,231	2,333	2,374	2,458	2,622	2,778	2,950
Estonia.....	na	na	na	na	2	177	202	240	248	255	299	320	344	339	333	368
Georgia.....	na	na	na	na	12	158	136	148	126	135	131	129	141	110	132	117
Hungary.....	1,714	1,847	1,722	1,806	1,824	1,718	1,774	1,826	1,839	1,939	2,144	2,313	2,292	2,479	2,308	2,503
Kazakhstan.....	na	na	na	na	19	250	191	173	143	125	122	109	113	116	123	128
Latvia.....	na	na	na	na	37	180	159	154	168	152	164	173	159	157	171	153
Lithuania.....	na	na	na	na	5	149	189	179	196	209	248	284	262	272	338	322
Moldova.....	na	na	na	na	15	156	159	140	136	116	98	95	96	77	76	78
Poland.....	4,030	4,245	3,999	3,919	4,113	3,848	4,041	4,535	4,597	4,445	4,891	5,195	5,342	5,686	6,023	6,770
Romania.....	393	513	377	395	568	507	675	648	871	835	858	909	956	997	900	988
Russia.....	na	na	na	na	817	19,659	21,612	19,974	18,464	18,343	17,841	17,149	18,271	15,846	15,818	15,782
Slovakia.....	na	na	na	na	44	na	1,151	1,137	1,175	1,051	1,144	997	1,007	955	936	943
Ukraine.....	na	na	na	na	162	2,894	2,923	2,856	2,600	2,287	2,362	2,351	2,365	2,256	2,183	2,089
USSR.....	31,625	32,879	32,443	31,047	31,127	130	na	na	na	na	na	na	na	na	na	na
Uzbekistan.....	na	na	na	na	50	275	290	295	347	264	213	242	273	204	192	192
All others.....	na	na	na	na	5	116	105	63	45	46	39	38	45	39	47	42
Near East/North Africa.....	7,896	8,400	8,241	8,153	8,423	8,830	9,141	9,647	9,706	10,063	10,522	10,752	11,111	11,802	11,987	13,465
Algeria.....	66	73	98	106	120	123	125	151	156	151	165	179	204	225	240	285
Egypt.....	1,130	1,278	1,254	1,429	1,288	1,279	1,380	1,359	1,359	1,242	1,302	1,362	1,376	1,548	1,564	1,720
Iran.....	86	91	94	126	150	175	233	271	312	366	523	699	825	995	1,277	1,806
Israel.....	4,916	5,134	4,968	4,873	5,234	5,575	5,559	5,921	5,815	6,203	6,240	6,091	6,314	6,487	6,415	6,941
Jordan.....	161	174	176	148	135	130	144	153	167	193	217	245	242	240	237	263
Kuwait.....	304	326	368	209	104	112	186	166	240	210	251	298	243	257	234	244
Lebanon.....	54	61	29	47	52	54	62	56	68	96	111	129	139	202	158	223
Morocco.....	113	108	97	128	170	164	182	237	256	298	370	425	471	469	461	428
Oman.....	13	20	27	32	37	42	46	53	63	63	76	88	99	96	116	114
Saudi Arabia.....	569	577	644	613	653	713	734	781	754	682	700	637	595	580	581	573
Syria.....	19	28	34	31	49	49	48	47	52	60	42	60	56	61	54	67
Tunisia.....	96	107	104	121	131	91	135	147	159	206	230	269	278	344	361	452
United Arab Emirates.....	23	30	33	57	77	109	98	122	145	154	157	137	144	159	169	193
All others.....	346	394	314	235	222	214	208	183	159	140	138	132	124	138	120	158
Central/South America.....	5,632	6,404	6,886	7,052	7,923	7,990	8,525	9,547	10,468	11,522	12,900	14,250	14,747	16,355	17,122	18,933
Argentina.....	1,423	1,518	1,627	1,499	1,526	1,585	1,747	1,969	2,212	2,430	2,546	2,705	2,792	2,930	3,161	3,086
Brazil.....	1,766	2,117	2,374	2,640	3,107	2,885	3,073	3,471	3,830	4,362	5,202	5,950	6,195	7,205	7,650	8,684
Chile.....	682	745	830	819	835	877	798	899	928	974	987	1,062	1,100	1,203	1,260	1,500
Colombia.....	86	111	122	106	125	122	145	167	196	230	237	254	320	324	353	337
Costa Rica.....	55	55	54	55	62	61	66	70	72	78	73	76	82	92	94	84
Cuba.....	67	90	108	94	131	113	141	166	194	177	234	242	282	299	201	264

Appendix table 5-41
S&E articles, by region and country/economy: 1988–2003

Region and country/economy	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Mexico	884	1,046	1,038	1,082	1,336	1,502	1,663	1,901	2,124	2,271	2,615	2,925	2,950	3,209	3,307	3,747
Peru	68	67	77	70	73	66	64	68	72	71	71	60	77	93	87	129
Uruguay	42	50	57	64	81	91	84	98	115	133	136	159	158	155	151	194
Venezuela.....	292	328	314	329	377	395	420	430	432	484	528	523	509	535	525	563
All others.....	268	278	286	294	268	292	324	307	292	313	272	293	281	310	333	345
Sub-Saharan Africa	4,544	4,504	4,355	4,409	4,356	4,321	4,263	4,161	3,982	4,028	3,985	4,207	3,973	3,990	4,151	4,219
Botswana.....	9	20	17	18	20	28	19	34	45	38	38	50	58	59	71	76
Cameroon.....	35	41	46	54	58	75	84	73	60	81	77	71	76	75	108	123
Ethiopia.....	71	58	70	93	88	84	86	99	88	109	80	106	90	93	101	99
Ghana.....	37	36	40	47	72	52	67	65	77	88	67	85	95	90	73	83
Kenya.....	291	300	255	260	295	346	280	310	275	256	270	278	237	230	239	258
Nigeria.....	886	864	815	719	666	604	470	464	433	458	418	451	428	332	353	384
Senegal Republic	na	na	na	na	2	na	75	77	64	65	73	71	73	62	54	79
South Africa	2,523	2,499	2,406	2,552	2,419	2,377	2,459	2,364	2,282	2,237	2,268	2,366	2,237	2,327	2,427	2,364
Tanzania.....	64	71	69	77	93	94	105	92	107	100	91	104	100	87	87	86
Uganda.....	21	17	29	20	29	44	39	49	43	55	59	73	78	91	79	90
Zimbabwe.....	116	123	131	103	119	124	139	109	119	123	122	102	104	113	104	96
All others.....	488	476	478	466	495	494	439	425	392	417	421	452	398	431	453	481
Other																
Canada	21,391	22,501	22,792	22,903	24,180	23,824	24,565	24,532	24,583	23,077	22,796	23,417	22,873	22,626	22,555	24,803
Australia.....	9,896	10,730	10,664	10,742	11,452	11,929	12,695	13,387	13,911	13,955	14,710	15,186	14,700	14,788	14,713	15,809
New Zealand.....	2,075	1,993	2,227	2,102	2,253	2,256	2,454	2,466	2,684	2,748	2,953	2,927	3,037	2,903	2,829	3,034
All others.....	83	78	70	71	70	81	74	69	49	58	57	75	55	53	54	52

na = not applicable

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Article counts from set of journals classified and covered by *Science Citation Index (SCI)* and *Social Sciences Citation Index (SSCI)*. Articles assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004. Countries with article output <0.01% of world output in 2003 grouped in "All others," except Luxembourg. Germany's output includes articles from former East Germany before 1992. China's output includes articles from Hong Kong economy before 2000. Czech Republic's output includes articles from former Czechoslovakia before 1996. Article output from former USSR included. Detail may not add to total because of rounding.

SOURCES: Thomson ISI, *SCI* and *SSCI*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-42
Share of S&E world article output by country/economy: 1988, 1996, and 2003
 (Percent)

Rank and country/economy	1988	1996	2003
1 United States.....	38.1	34.0	30.3
2 Japan	7.4	8.5	8.6
3 United Kingdom.....	7.8	8.1	6.9
4 Germany	6.3	6.6	6.3
5 France.....	4.6	5.0	4.6
6 China	1.0	1.7	4.2
7 Canada.....	4.6	4.1	3.6
8 Italy.....	2.4	3.3	3.5
9 Spain.....	1.2	2.1	2.4
10 Russia.....	na	3.1	2.3
11 Australia.....	2.1	2.3	2.2
12 South Korea.....	0.2	0.8	2.0
13 Netherlands.....	1.8	2.1	1.9
14 India.....	1.9	1.6	1.8
15 Sweden.....	1.6	1.6	1.5
16 Taiwan	0.3	1.0	1.3
17 Brazil.....	0.4	0.6	1.2
18 Switzerland	1.1	1.3	1.2
19 Israel.....	1.1	1.0	1.0
20 Poland.....	0.9	0.8	1.0
21 Belgium.....	0.8	0.9	0.9
22 Turkey.....	0.1	0.4	0.9
23 Denmark	0.7	0.8	0.8
24 Finland	0.6	0.7	0.7
25 Austria	0.5	0.6	0.7

na = not applicable

NOTES: Countries/economies ranked by share of world article output in 2003. Articles assigned to country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. China includes Hong Kong.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-43

(Page 1 of 2)

Per capita output of S&E articles, by selected country/economy: 2000-03

Country/economy	Articles/million inhabitants	Country/economy	Articles/million inhabitants
Sweden	1,136.65	Tonga	8.86
Switzerland.....	1,119.96	Suriname	8.84
Israel	1,018.46	Kazakhstan	8.22
Finland	974.27	Zimbabwe	8.09
Denmark.....	933.34	Algeria	8.04
Netherlands	800.21	Kenya	7.81
United Kingdom	796.48	Uzbekistan	7.80
Australia	773.17	Colombia.....	7.80
Canada.....	747.56	Guyana	7.17
New Zealand	745.12	Mongolia.....	6.92
Norway.....	715.28	Senegal Republic	6.63
United States.....	706.79	Cameroon	6.54
Singapore	676.50	Belize.....	5.64
Iceland.....	672.44	Sri Lanka	5.51
Belgium.....	599.19	Solomon Islands.....	5.11
Austria.....	573.96	Malawi.....	4.41
Germany.....	525.14	Ghana	4.17
France	523.86	Benin	4.09
Taiwan.....	502.69	Libya.....	4.03
OECD.....	489.77	Bolivia.....	3.98
Slovenia.....	456.43	Peru.....	3.88
Japan	452.78	Swaziland	3.77
Ireland	435.18	Tajikistan	3.71
Italy	400.66	Albania.....	3.68
Spain.....	394.26	Bosnia and Herzegovina	3.61
Greece.....	328.86	Syria	3.61
Czech Republic.....	272.23	Uganda	3.58
South Korea.....	256.51	Ecuador	3.43
Estonia	254.91	Kyrgyzstan	3.41
Hungary.....	240.11	Zambia	2.79
Portugal.....	227.68	Congo, Republic of the	2.72
Slovakia.....	175.57	Nigeria	2.71
Croatia.....	165.52	Côte d'Ivoire.....	2.71
Poland	160.31	Burkina Faso.....	2.68
Cyprus.....	109.95	Mauritania.....	2.68
Russia	109.50	Tanzania	2.49
All countries.....	107.65	Pakistan	2.29
Kuwait.....	106.89	Philippines	2.17
Bulgaria.....	100.81	Vietnam	2.16
Lithuania	89.33	Nepal	2.05
Chile.....	85.29	Togo.....	1.87
Argentina.....	83.33	Equatorial Guinea.....	1.86
Turkey	74.30	Madagascar	1.80
Latvia	68.31	Eritrea	1.63
Armenia.....	57.07	Nicaragua	1.62
Serbia and Montenegro.....	57.04	Paraguay.....	1.54
South Africa.....	52.90	Guatemala	1.49
Belarus	51.62	Ethiopia.....	1.47
Uruguay.....	49.78	Niger.....	1.39
Jordan	48.37	Bangladesh.....	1.34
United Arab Emirates	47.83	Mali	1.34
Brazil.....	45.26	Sudan	1.23
Ukraine.....	44.49	Central African Republic	1.17
Lebanon	44.05	Iraq.....	1.16
Romania	43.04	Laos.....	1.01
Botswana	40.38	Honduras	1.00
Tunisia.....	39.66	Indonesia	0.88
Mexico.....	34.17	Cambodia	0.79
Macedonia.....	30.57	Dominican Republic	0.73
Saudi Arabia	26.76	Yemen.....	0.69
Egypt.....	24.49	El Salvador.....	0.69
Costa Rica	23.03	Mozambique	0.68

Appendix table 5-43

(Page 2 of 2)

Per capita output of S&E articles, by selected country/economy: 2000–03

Country/economy	Articles/million inhabitants	Country/economy	Articles/million inhabitants
Georgia.....	22.97	Namibia	10.04
Cuba.....	22.65	Turkmenistan	0.60
Venezuela.....	21.78	Chad	0.50
Iran.....	20.90	Sierra Leone	0.49
Malaysia	20.78	Haiti	0.46
Jamaica.....	19.31	Burundi	0.40
China.....	19.17	Rwanda	0.39
Moldova.....	18.08	Djibouti	0.36
Panama	17.28	Angola	0.28
Gabon Republic	16.74	Liberia	0.23
Morocco	15.40	Myanmar	0.13
Mauritius	14.70	Congo, Democratic Republic of the.....	0.10
Thailand	14.16	North Korea.....	0.05
India	11.34	Somalia.....	0.03
Azerbaijan.....	10.17	Afghanistan.....	0.01

OECD = Organisation for Economic Co-operation and Development

NOTES: Countries/economies ranked by average per-capita S&E article output for 2000–03. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; National Science Foundation, Division of Science Resources Statistics, special tabulations; population data (except Taiwan): World Bank, World Development Indicators database, <http://www.worldbank.org/data/wdi2005/>; Taiwan population: U.S. Central Intelligence Agency, *The World Factbook 2002* and prior editions (annual series).

Appendix table 5-44

Regional and country portfolio of S&E articles, by field: 1996

(Percent distribution)

(Page 1 of 3)

Region and country/economy	Articles (number)	All fields	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth/space sciences	Engineering/ technology	Mathematics	Psychology	Social sciences	Health sciences	Professional fields
All countries/economies.....	593,568	100.0	29.1	14.9	6.8	12.1	14.2	5.1	7.0	1.7	2.5	3.2	1.3	2.3
Major S&E article producers.....	467,036	100.0	31.1	15.4	6.1	11.0	13.2	4.9	7.0	1.6	2.6	3.2	1.4	2.5
United States.....	201,798	100.0	31.2	16.8	6.1	7.5	9.4	5.5	6.4	1.6	4.1	4.7	2.2	4.5
EU-15.....	193,172	100.0	32.9	15.1	6.3	12.4	14.0	5.2	5.7	1.8	1.7	2.7	0.9	1.3
Austria.....	3,618	100.0	41.9	14.2	5.3	9.3	14.2	3.5	5.2	1.6	1.2	2.8	0.1	0.7
Belgium.....	5,583	100.0	34.5	15.1	7.4	12.3	14.2	4.1	5.5	1.7	1.4	2.2	0.4	1.2
Denmark.....	4,477	100.0	40.5	17.8	8.5	6.5	10.9	6.4	3.3	1.2	0.9	2.5	0.4	1.2
Finland.....	4,354	100.0	43.6	13.5	9.0	7.4	8.6	4.9	5.5	1.0	2.1	1.3	1.4	1.5
France.....	29,755	100.0	28.4	16.7	5.6	14.0	16.7	6.4	6.0	3.2	0.9	1.6	0.2	0.4
Germany.....	39,123	100.0	28.3	15.1	5.3	15.8	19.2	4.6	5.7	1.7	1.7	1.7	0.3	0.7
Greece.....	2,265	100.0	28.6	8.5	7.8	14.6	13.5	8.2	11.7	2.5	0.5	2.3	0.4	1.4
Ireland.....	1,269	100.0	34.9	17.6	8.3	9.5	8.9	4.3	4.7	1.8	2.7	4.2	1.2	2.0
Italy.....	19,342	100.0	38.4	13.3	4.3	12.7	16.5	4.9	5.9	1.7	0.7	1.0	0.2	0.4
Luxembourg.....	20	100.0	46.0	20.5	2.5	5.7	5.7	6.5	0.0	0.0	0.0	4.1	0.0	9.0
Netherlands.....	12,438	100.0	37.3	15.2	7.1	9.4	10.4	5.3	4.4	1.2	3.5	3.4	1.2	1.7
Portugal.....	1,090	100.0	16.8	13.5	10.4	17.5	15.3	4.8	13.5	2.5	1.4	2.8	0.2	1.2
Spain.....	12,234	100.0	27.3	14.9	10.6	19.4	13.0	4.9	4.9	2.3	0.9	1.1	0.2	0.6
Sweden.....	9,697	100.0	41.7	15.5	7.0	8.2	10.2	5.2	5.0	1.0	1.8	1.8	1.6	1.0
United Kingdom.....	47,904	100.0	33.5	15.0	6.3	9.3	10.1	5.3	6.1	1.2	2.6	5.3	2.3	2.9
Japan.....	50,392	100.0	29.8	14.0	6.3	15.6	20.4	2.3	9.6	0.8	0.6	0.4	0.1	0.1
East Asia-4.....	21,675	100.0	16.5	7.5	3.7	19.8	25.3	3.4	17.5	2.7	0.5	1.6	0.3	1.2
China.....	10,070	100.0	13.5	5.1	3.3	22.5	29.6	4.0	14.5	3.6	0.8	1.4	0.3	1.4
Singapore.....	1,181	100.0	18.0	10.3	3.3	12.7	14.4	2.8	25.6	4.2	0.4	3.9	0.3	4.1
South Korea.....	4,728	100.0	12.3	10.0	2.7	22.2	28.2	2.4	18.1	1.6	0.3	1.2	0.2	0.7
Taiwan.....	5,696	100.0	24.8	9.1	5.1	14.5	17.4	3.5	20.8	1.8	0.3	1.5	0.2	0.8
Other regions/countries														
Other Western Europe														
Croatia.....	614	100.0	22.1	6.8	3.7	25.5	12.7	5.6	3.3	2.1	2.4	14.6	0.4	0.7
Cyprus.....	54	100.0	8.4	9.2	9.3	1.9	19.2	11.5	10.9	9.0	0.0	6.5	0.0	14.0
Iceland.....	149	100.0	43.8	9.0	12.9	4.0	5.4	10.6	1.3	0.9	4.9	3.0	2.4	1.7
Norway.....	2,950	100.0	36.2	11.5	10.9	8.4	5.6	9.4	6.2	1.2	2.6	5.2	1.3	1.4
Switzerland.....	7,489	100.0	34.2	17.7	4.6	12.2	17.5	4.8	4.2	1.2	1.3	1.5	0.3	0.5
Turkey.....	2,206	100.0	41.6	6.7	4.5	16.6	8.7	5.7	11.2	0.7	1.0	2.0	0.2	1.1
Yugoslavia.....	568	100.0	22.2	8.9	3.5	18.7	19.8	3.7	18.8	2.1	0.4	0.7	0.5	0.6
All others.....	91	100.0	19.6	5.3	10.9	26.0	17.8	6.0	10.7	0.0	0.0	3.6	0.2	0.0
Other Asia														
Bangladesh.....	155	100.0	21.0	9.2	11.7	17.3	10.8	4.2	10.2	0.6	0.0	13.6	1.2	0.0
India.....	9,736	100.0	11.9	13.9	6.8	26.8	20.4	4.6	12.0	1.1	0.3	1.7	0.1	0.5
Indonesia.....	137	100.0	18.9	11.2	26.7	3.4	7.0	11.2	5.1	0.0	0.9	10.2	3.0	2.4
Malaysia.....	372	100.0	20.1	9.6	17.6	29.1	4.4	4.5	5.3	0.9	0.9	4.3	0.9	2.3
Pakistan.....	274	100.0	24.2	7.4	11.4	20.0	15.9	4.7	5.6	1.3	0.3	6.0	1.8	1.2
Philippines.....	153	100.0	12.7	10.1	52.1	1.5	4.3	6.9	1.3	0.0	0.7	7.4	0.4	2.6
Sri Lanka.....	78	100.0	20.0	19.7	23.3	8.1	10.5	4.3	0.6	0.0	0.0	7.7	2.6	3.2

Regional and country portfolio of S&E articles, by field: 1996

(Percent distribution)

Region and country/economy	Articles (number)	All fields	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth/space sciences	Engineering/ technology	Mathematics	Psychology	Social sciences	Health sciences	Professional fields
Thailand.....	386	100.0	44.1	12.3	15.5	7.0	3.5	3.0	8.5	0.3	1.0	2.8	1.1	1.0
Vietnam.....	113	100.0	17.7	7.4	3.2	10.3	23.6	4.4	6.7	21.3	0.0	3.2	2.2	0.0
All others.....	74	100.0	23.7	7.1	16.4	8.6	6.1	18.4	1.7	0.0	4.2	10.8	1.1	2.0
Eastern Europe/former USSR.....	35,074	100.0	7.3	12.3	4.8	26.3	32.8	5.0	7.0	1.9	0.8	1.5	0.1	0.3
Armenia.....	179	100.0	3.4	19.6	2.0	10.4	54.0	5.6	1.7	3.1	0.0	0.0	0.3	0.0
Azerbaijan.....	125	100.0	2.0	5.1	3.6	40.8	40.6	0.4	5.5	1.2	0.0	0.8	0.0	0.0
Bulgaria.....	968	100.0	11.4	9.9	6.1	28.2	23.1	4.7	10.5	3.4	1.2	0.8	0.4	0.5
Belarus.....	597	100.0	3.9	12.1	3.1	23.5	47.9	0.9	6.5	1.2	0.0	0.5	0.0	0.4
Czech Republic.....	2,249	100.0	11.1	14.4	7.3	31.6	15.3	6.1	5.9	1.8	2.3	4.0	0.1	0.2
Estonia.....	248	100.0	19.8	10.1	6.5	16.2	28.6	11.9	3.6	1.1	0.8	1.2	0.0	0.1
Georgia.....	126	100.0	3.6	8.1	1.2	18.2	48.6	4.8	7.5	4.5	2.0	1.6	0.0	0.0
Hungary.....	1,839	100.0	18.9	13.0	5.1	29.2	17.3	4.6	5.0	2.4	1.1	2.3	0.2	1.0
Kazakhstan.....	143	100.0	0.0	4.3	8.1	46.1	25.0	7.2	6.5	0.0	0.1	2.8	0.0	0.0
Latvia.....	168	100.0	7.1	10.1	3.3	29.1	32.4	7.8	7.0	2.0	0.0	0.0	0.0	1.4
Lithuania.....	196	100.0	7.9	8.7	3.8	25.5	37.8	4.1	10.1	1.4	0.0	0.5	0.2	0.0
Moldova.....	136	100.0	1.5	6.1	2.2	40.9	43.5	0.0	1.8	2.6	0.7	0.7	0.0	0.0
Poland.....	4,597	100.0	13.6	8.6	4.8	28.5	29.1	4.2	6.7	2.4	0.6	0.9	0.1	0.5
Romania.....	871	100.0	3.8	4.3	0.9	38.5	33.9	1.7	10.2	5.5	0.0	0.8	0.2	0.2
Russia.....	18,464	100.0	4.4	14.5	5.2	23.9	36.4	5.4	6.4	1.7	0.8	1.1	0.0	0.2
Slovakia.....	1,175	100.0	14.7	16.7	3.3	29.4	14.2	4.0	4.3	1.5	2.7	8.9	0.0	0.3
Ukraine.....	2,600	100.0	3.0	5.2	2.1	23.2	45.0	4.7	14.7	1.5	0.3	0.3	0.0	0.2
Uzbekistan.....	347	100.0	1.4	3.5	1.7	57.1	32.2	2.4	0.7	0.9	0.0	0.1	0.0	0.0
All others.....	45	100.0	2.2	19.3	5.5	22.8	22.3	20.2	3.3	2.2	0.0	2.2	0.0	0.0
Near East/North Africa.....	9,706	100.0	30.1	10.0	7.4	13.7	14.6	4.0	9.5	2.9	2.1	2.9	0.9	1.9
Algeria.....	156	100.0	7.4	8.8	7.3	21.7	29.2	6.9	13.5	3.4	0.0	1.6	0.0	0.2
Egypt.....	1,359	100.0	18.5	5.2	7.6	36.0	12.2	4.6	13.8	0.8	0.2	1.0	0.2	0.1
Iran.....	312	100.0	23.0	5.0	6.9	33.7	15.1	2.6	10.7	1.9	0.0	1.0	0.0	0.1
Israel.....	5,815	100.0	33.0	12.2	7.0	6.8	16.3	3.1	7.3	3.5	3.3	3.8	1.2	2.5
Jordan.....	167	100.0	25.9	5.3	6.5	18.2	14.4	6.4	16.6	0.6	0.5	3.0	0.6	2.1
Kuwait.....	240	100.0	23.9	15.0	5.2	14.9	4.4	10.3	18.7	1.0	1.0	3.1	0.8	1.8
Lebanon.....	68	100.0	39.9	7.1	6.8	4.4	8.5	2.2	12.6	3.7	2.9	8.5	0.0	3.4
Morocco.....	256	100.0	11.3	6.1	7.7	27.7	21.1	8.2	8.8	7.1	0.2	1.1	0.0	0.8
Oman.....	63	100.0	39.7	2.3	26.0	7.6	7.2	5.1	4.9	3.2	0.0	1.6	0.8	1.6
Saudi Arabia.....	754	100.0	44.1	9.0	5.5	9.5	7.8	4.1	13.6	1.6	0.1	1.1	0.9	2.6
Syria.....	52	100.0	10.8	1.8	63.7	8.7	9.1	1.9	1.0	1.0	0.0	1.9	0.0	0.0
Tunisia.....	159	100.0	27.0	6.9	5.9	23.9	15.9	6.7	5.2	6.4	0.0	0.7	0.0	1.5
United Arab Emirates.....	145	100.0	48.5	8.5	3.7	9.5	2.5	9.3	5.2	1.7	3.4	4.1	1.7	1.7
All others.....	159	100.0	23.1	2.7	10.0	18.5	10.6	9.5	17.2	1.9	0.0	3.0	2.0	1.6
Central/South America.....	10,468	100.0	23.4	15.7	12.6	12.7	18.0	6.0	4.8	1.8	1.2	1.6	1.8	0.5
Argentina.....	2,212	100.0	23.2	16.4	14.9	14.3	17.3	5.6	5.2	1.2	0.7	1.0	0.1	0.2
Brazil.....	3,830	100.0	22.2	17.9	9.4	11.7	21.4	5.2	5.2	2.3	0.7	1.5	1.9	0.4
Chile.....	928	100.0	33.3	12.5	11.3	16.9	6.4	9.6	4.5	2.3	0.4	1.6	0.6	0.5
Colombia.....	196	100.0	23.5	13.3	22.2	8.1	14.5	3.8	4.9	1.4	3.3	1.7	0.6	2.6

Regional and country portfolio of S&E articles, by field: 1996

(Percent distribution)

Region and country/economy	Articles (number)	All fields	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth/space sciences	Engineering/technology	Mathematics	Psychology	Social sciences	Health sciences	Professional fields
Costa Rica.....	72	100.0	24.2	21.4	34.4	6.1	0.0	6.5	2.1	0.7	1.4	2.8	0.0	0.5
Cuba.....	194	100.0	25.7	16.7	9.0	18.6	18.9	2.8	4.0	0.9	0.8	1.1	1.4	0.3
Mexico.....	2,124	100.0	20.3	12.1	13.5	11.1	22.6	6.6	4.3	1.5	2.1	1.7	4.1	0.3
Peru.....	72	100.0	34.2	14.1	25.5	0.5	6.7	2.9	2.4	0.0	0.7	8.3	3.6	1.2
Uruguay.....	115	100.0	36.4	19.6	9.0	7.6	13.5	6.6	1.7	3.0	0.0	1.0	1.0	0.5
Venezuela.....	432	100.0	16.8	18.1	13.0	21.4	11.7	5.6	6.2	2.1	2.7	1.7	0.5	0.3
All others.....	724	100.0	22.3	15.9	17.6	14.5	7.8	7.0	4.6	1.4	2.9	3.6	1.1	1.3
Sub-Saharan Africa.....	3,982	100.0	33.1	11.4	20.2	7.8	4.5	7.2	3.5	0.9	1.9	5.3	1.7	2.5
Botswana.....	45	100.0	6.5	13.5	28.0	3.4	0.0	4.1	2.2	2.2	0.0	24.7	2.2	13.1
Cameroon.....	60	100.0	33.7	9.0	23.3	5.6	10.9	6.8	5.0	0.0	2.5	0.6	2.5	0.0
Ethiopia.....	88	100.0	39.4	8.6	32.2	6.2	0.0	3.3	0.0	0.0	0.0	3.8	0.3	6.3
Ghana.....	77	100.0	40.9	5.6	25.5	3.9	3.9	3.6	2.6	0.0	0.3	3.5	3.0	7.2
Kenya.....	275	100.0	48.2	10.1	24.8	1.1	0.2	4.5	0.7	0.0	0.8	6.8	1.3	1.5
Nigeria.....	433	100.0	26.2	11.6	27.4	13.0	3.0	4.7	1.9	0.6	0.6	3.9	2.9	4.1
Senegal.....	64	100.0	41.9	15.8	13.6	2.0	2.8	5.5	3.7	0.8	0.0	10.5	3.5	0.0
South Africa.....	2,282	100.0	27.7	12.4	17.0	10.0	6.3	9.1	4.7	1.1	2.9	5.7	0.9	2.2
Tanzania.....	107	100.0	53.2	9.6	21.0	0.5	0.0	6.3	2.3	0.0	0.2	4.1	2.0	0.9
Uganda.....	43	100.0	59.8	5.2	22.0	0.0	0.0	3.1	0.0	0.0	0.0	2.3	4.6	2.9
Zimbabwe.....	119	100.0	47.7	9.7	19.9	1.1	1.3	5.7	1.3	0.4	2.0	4.5	4.4	2.1
All others.....	392	100.0	47.3	9.0	22.6	1.6	2.5	4.8	2.1	1.3	0.6	2.9	4.0	1.7
Other														
Australia.....	13,911	100.0	29.7	12.6	14.6	8.0	8.1	7.0	5.3	1.6	3.1	4.9	2.8	2.2
Canada.....	24,583	100.0	27.1	14.8	11.6	8.7	7.7	7.5	7.6	1.8	4.2	4.7	1.9	2.6
New Zealand.....	2,684	100.0	28.0	10.2	23.7	6.7	3.9	8.7	3.2	1.1	4.5	4.7	1.5	3.8
All others.....	49	100.0	41.5	8.7	24.0	2.0	0.0	8.4	2.0	2.0	0.0	5.1	0.4	5.8

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Publication counts from set of journals classified and covered by *Science Citation Index (SCI)* and *Social Sciences Citation Index (SSCI)*. Articles assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Countries with article output <0.0% of world output in 2003 grouped in "all others" except Luxembourg. China includes Hong Kong.

SOURCES: Thomson ISI, *SCI* and *SSCI*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Regional and country portfolio of S&E articles, by field: 2003

(Percent distribution)

Region and country/economy	Articles (number)	All fields	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth/space sciences	Engineering/ technology	Mathematics	Psychology	Social sciences	Health sciences	Professional fields
All countries/economies.....	698,726	100.0	27.9	13.7	7.1	11.9	13.9	5.5	9.0	2.2	2.2	3.1	1.4	2.1
Major S&E article producers.....	546,626	100.0	29.3	14.2	6.4	11.0	13.3	5.4	9.0	2.1	2.3	3.2	1.5	2.3
United States.....	211,233	100.0	31.2	16.3	6.6	7.5	8.8	5.9	7.0	3.7	1.8	4.6	2.4	4.1
EU-15.....	220,002	100.0	31.6	13.7	6.8	11.1	13.3	5.7	7.6	2.0	2.5	3.0	1.2	1.5
Austria.....	4,906	100.0	42.3	12.9	5.0	9.1	12.4	4.4	6.2	1.3	2.7	2.4	0.4	1.0
Belgium.....	6,604	100.0	31.5	13.7	8.5	11.1	13.3	5.0	7.4	2.2	2.3	2.6	0.8	1.6
Denmark.....	5,291	100.0	36.5	17.5	11.7	7.0	9.1	6.1	4.3	1.4	1.5	2.6	0.9	1.4
Finland.....	5,202	100.0	35.9	13.2	10.5	7.5	9.6	5.1	7.9	2.0	1.5	2.5	2.3	2.1
France.....	31,971	100.0	26.4	14.3	5.9	12.9	16.9	6.8	8.6	1.0	4.7	1.8	0.3	0.5
Germany.....	44,305	100.0	31.3	13.7	5.3	12.4	16.8	5.4	7.7	2.0	2.2	1.9	0.6	0.8
Greece.....	3,770	100.0	32.4	8.0	8.8	12.3	12.3	6.2	12.1	0.8	2.6	3.1	0.3	1.2
Ireland.....	1,758	100.0	30.7	14.6	11.6	10.5	10.0	3.9	7.3	1.3	2.2	4.8	1.6	1.6
Italy.....	24,696	100.0	34.8	12.3	4.9	11.5	16.7	6.2	8.0	0.9	2.8	1.2	0.3	0.5
Luxembourg.....	46	100.0	29.9	13.1	12.8	4.7	12.9	3.2	7.6	1.1	1.6	4.3	2.7	6.1
Netherlands.....	13,475	100.0	38.6	13.3	6.8	7.9	8.8	5.2	5.7	4.0	1.4	4.0	1.8	2.5
Portugal.....	2,625	100.0	13.4	13.5	12.3	16.4	16.6	5.5	15.8	0.8	3.4	1.4	0.3	0.7
Spain.....	16,826	100.0	24.5	13.0	12.0	17.8	11.9	5.5	7.4	1.1	3.5	1.9	0.4	1.0
Sweden.....	10,237	100.0	36.5	15.4	7.5	8.5	10.0	4.4	7.1	2.2	1.5	2.6	3.0	1.4
United Kingdom.....	48,288	100.0	32.1	14.2	6.2	8.2	9.3	6.0	7.1	3.1	1.6	6.1	2.8	3.4
Japan.....	60,067	100.0	27.2	13.3	6.3	14.7	20.8	3.1	12.1	0.4	1.3	0.5	0.1	0.1
East Asia-4.....	55,324	100.0	14.9	9.2	4.2	20.2	22.5	4.0	19.2	2.8	0.5	1.0	0.4	1.1
China.....	29,186	100.0	10.7	8.2	4.2	24.8	24.9	4.3	16.8	0.4	3.6	0.8	0.3	0.9
Singapore.....	3,122	100.0	15.3	9.4	2.7	12.8	18.2	2.4	28.1	0.8	3.1	3.7	0.6	3.0
South Korea.....	13,746	100.0	17.0	12.0	4.3	16.5	22.7	2.8	20.7	0.3	1.8	0.9	0.4	0.8
Taiwan.....	9,270	100.0	25.0	8.0	4.7	13.8	16.3	5.0	21.3	0.7	1.6	1.2	0.7	1.7
Other regions/countries														
Other Western Europe														
Croatia.....	845	100.0	21.4	8.4	6.8	18.2	13.3	3.4	4.9	1.2	1.1	20.3	0.3	0.8
Cyprus.....	92	100.0	18.6	3.7	3.1	9.6	16.3	4.8	9.3	4.2	8.0	12.5	0.1	9.8
Iceland.....	203	100.0	34.1	14.6	10.0	6.1	5.4	13.8	3.2	3.1	1.6	1.9	4.3	2.0
Norway.....	3,339	100.0	32.8	12.0	14.3	5.2	4.5	10.0	5.8	3.4	1.5	5.6	2.9	2.0
Switzerland.....	8,542	100.0	31.8	16.0	5.6	12.5	14.5	6.6	6.2	1.3	1.6	2.4	0.7	0.9
Turkey.....	6,224	100.0	44.6	7.2	7.6	11.2	8.9	4.6	10.9	0.8	1.0	1.6	0.7	1.0
Yugoslavia.....	600	100.0	17.3	8.4	5.5	19.2	20.8	3.6	20.2	0.3	3.6	0.6	0.3	0.2
All others.....	124	100.0	22.9	6.1	4.5	24.9	16.2	10.0	10.3	1.5	2.0	1.3	0.4	0.0
Other Asia														
Bangladesh.....	204	100.0	14.3	10.3	10.5	13.2	19.1	7.9	13.7	0.7	0.0	6.2	3.6	0.5
India.....	12,774	100.0	15.5	12.9	6.9	26.6	18.1	4.9	11.9	0.2	1.2	1.1	0.2	0.4
Indonesia.....	178	100.0	16.5	13.1	24.3	8.4	7.9	9.4	5.9	0.4	0.9	10.5	2.3	0.6
Malaysia.....	520	100.0	20.4	9.5	16.9	17.6	9.0	4.2	15.5	1.1	1.3	3.2	0.0	1.4
Pakistan.....	368	100.0	20.1	9.8	18.8	21.1	15.1	3.3	5.9	0.4	0.2	4.1	0.7	0.4
Philippines.....	179	100.0	15.9	12.5	32.4	4.8	8.0	5.9	3.4	1.6	3.1	9.6	2.0	0.9
Sri Lanka.....	141	100.0	25.2	8.9	29.5	5.5	13.0	6.3	4.8	0.4	0.4	3.2	1.7	1.1

Regional and country portfolio of S&E articles, by field: 2003

(Percent distribution)

Region and country/economy	Articles (number)	All fields	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth/space sciences	Engineering/ technology	Mathematics	Psychology	Social sciences	Health sciences	Professional fields
Thailand.....	1,072	100.0	31.7	13.0	15.9	15.7	4.7	3.6	9.2	0.6	0.8	1.8	2.2	0.8
Vietnam.....	216	100.0	14.3	4.9	11.0	5.3	37.0	2.9	5.4	0.0	12.6	1.8	4.1	0.7
All others.....	125	100.0	33.1	9.9	17.9	3.3	5.4	14.2	2.6	0.1	2.7	6.6	3.4	0.8
Eastern Europe/former USSR.....	35,067	100.0	9.1	9.0	4.7	25.5	30.6	5.9	9.2	0.7	3.6	1.5	0.1	0.2
Armenia.....	175	100.0	3.2	5.8	0.9	17.3	56.3	7.5	5.0	0.0	3.4	0.6	0.0	0.0
Azerbaijan.....	107	100.0	0.7	2.7	2.1	34.7	44.3	3.9	7.4	0.0	2.8	0.9	0.5	0.0
Bulgaria.....	829	100.0	11.9	10.8	6.1	24.9	21.1	3.9	16.9	0.1	3.5	0.5	0.1	0.2
Belarus.....	532	100.0	3.1	6.5	3.5	26.3	45.0	1.1	10.6	0.0	2.9	0.8	0.0	0.1
Czech Republic.....	2,950	100.0	16.1	16.3	8.5	22.8	15.9	5.3	8.4	1.1	2.8	2.3	0.0	0.6
Estonia.....	368	100.0	13.9	12.2	11.1	10.5	17.6	11.7	11.2	3.8	1.8	3.9	1.7	0.5
Georgia.....	117	100.0	10.1	4.1	2.0	13.0	39.6	9.6	9.5	0.0	9.5	1.9	0.1	0.6
Hungary.....	2,503	100.0	26.4	14.4	5.4	20.0	16.0	3.0	7.6	0.8	4.2	1.6	0.2	0.4
Kazakhstan.....	128	100.0	3.4	5.4	2.4	43.9	24.5	3.8	8.7	0.0	6.6	1.2	0.0	0.0
Latvia.....	153	100.0	7.1	12.4	2.1	26.6	31.3	3.1	14.1	0.3	0.3	2.0	0.7	0.0
Lithuania.....	322	100.0	10.3	12.1	8.6	17.5	25.4	3.3	9.4	0.0	10.2	2.2	0.8	0.1
Moldova.....	78	100.0	1.9	4.3	4.3	25.8	55.7	0.0	5.8	0.0	1.0	1.3	0.0	0.0
Poland.....	6,770	100.0	15.5	8.7	6.1	25.4	26.8	4.1	8.7	0.4	3.4	0.7	0.1	0.1
Romania.....	988	100.0	3.6	3.0	1.1	39.3	29.6	3.0	10.9	0.2	8.5	0.7	0.0	0.3
Russia.....	15,782	100.0	3.5	7.6	3.5	27.2	35.6	8.0	8.5	0.8	3.5	1.6	0.1	0.2
Slovakia.....	943	100.0	13.1	16.7	6.0	19.9	21.4	3.3	6.8	2.3	2.4	7.5	0.1	0.5
Ukraine.....	2,089	100.0	3.4	4.2	2.0	21.6	45.0	4.7	15.5	0.2	3.0	0.3	0.0	0.0
Uzbekistan.....	192	100.0	2.9	2.0	2.7	36.2	46.1	2.9	3.8	0.5	1.9	0.5	0.5	0.0
All others.....	42	100.0	7.3	1.1	4.3	11.8	22.2	27.2	9.5	0.0	9.4	5.9	0.0	1.2
Near East/North Africa.....	13,465	100.0	27.3	9.5	6.5	16.3	14.9	3.6	11.3	1.9	3.6	2.4	1.0	1.7
Algeria.....	285	100.0	5.0	2.8	2.9	17.7	36.0	2.6	27.1	0.0	5.7	0.1	0.0	0.0
Egypt.....	1,720	100.0	18.6	5.7	5.4	31.0	17.1	4.5	15.6	0.0	1.0	0.4	0.1	0.4
Iran.....	1,806	100.0	18.2	4.0	5.1	39.3	13.6	2.7	12.8	0.7	2.3	0.7	0.1	0.3
Israel.....	6,941	100.0	32.3	13.0	6.9	7.4	14.9	3.2	7.3	3.1	3.9	3.7	1.6	2.7
Jordan.....	263	100.0	20.1	8.2	13.2	12.3	14.9	5.8	19.6	0.2	2.4	2.2	1.0	0.0
Kuwait.....	244	100.0	38.9	8.4	6.9	9.0	2.2	3.4	19.7	3.8	2.6	2.0	1.9	1.2
Lebanon.....	223	100.0	49.5	6.9	5.3	3.7	3.9	5.1	11.6	0.4	4.3	4.9	2.6	1.7
Morocco.....	428	100.0	15.1	5.3	7.2	21.5	22.3	6.2	11.1	0.1	10.9	0.4	0.0	0.0
Oman.....	114	100.0	25.3	7.4	10.8	9.6	12.8	7.3	21.1	1.3	3.7	0.3	0.0	0.4
Saudi Arabia.....	573	100.0	35.2	5.4	3.2	16.9	11.6	3.4	18.1	0.6	3.0	1.0	0.8	1.0
Syria.....	67	100.0	16.7	10.0	44.1	13.2	5.7	7.8	1.2	0.0	0.0	0.7	0.5	0.0
Tunisia.....	452	100.0	24.4	7.2	6.5	19.8	14.1	4.2	14.8	0.0	8.1	0.7	0.0	0.2
United Arab Emirates.....	193	100.0	25.2	12.1	5.8	6.5	7.8	4.7	20.6	2.9	4.8	3.5	1.5	4.7
All others.....	158	100.0	29.7	12.3	3.9	12.0	8.7	5.5	18.1	0.6	2.2	3.5	1.3	2.1
Central/South America.....	18,933	100.0	22.6	14.4	13.9	12.5	16.5	5.8	7.9	0.8	2.4	1.5	1.3	0.5
Argentina.....	3,086	100.0	21.3	15.2	18.7	13.4	14.5	6.7	5.7	0.5	1.9	1.4	0.4	0.3
Brazil.....	8,684	100.0	24.6	15.7	10.8	12.9	17.1	4.3	9.0	0.6	2.4	1.0	1.4	0.4
Chile.....	1,500	100.0	24.5	10.5	11.7	15.2	10.8	10.5	7.7	0.9	4.3	2.1	0.5	1.3
Colombia.....	337	100.0	25.2	14.3	17.1	8.9	15.7	3.4	6.2	2.3	2.4	2.6	1.5	0.5

Regional and country portfolio of S&E articles, by field: 2003

(Percent distribution)

Region and country/economy	Articles (number)	All fields	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth/space sciences	Engineering/ technology	Mathematics	Psychology	Social sciences	Health sciences	Professional fields
Costa Rica.....	84	100.0	25.1	16.6	36.3	1.2	5.7	4.6	2.3	1.2	1.8	2.8	2.5	0.0
Cuba.....	264	100.0	24.3	19.4	12.4	13.5	17.7	1.6	7.4	0.5	0.9	1.3	0.9	0.0
Mexico.....	3,747	100.0	17.5	12.0	15.6	9.8	21.2	7.4	8.4	1.5	2.1	2.1	1.9	0.5
Peru.....	129	100.0	28.7	13.0	25.2	6.3	5.9	7.3	6.0	0.4	1.2	3.2	2.6	0.3
Uruguay.....	194	100.0	21.6	27.3	18.6	6.8	12.4	4.3	1.7	0.0	3.9	2.1	0.7	0.5
Venezuela.....	563	100.0	20.5	13.6	12.1	21.4	14.1	3.1	9.7	0.3	2.9	1.4	0.6	0.2
All others.....	908	100.0	22.9	12.9	18.9	15.7	10.7	5.5	6.9	0.8	2.0	2.3	0.9	0.4
Sub-Saharan Africa.....	4,219	100.0	26.4	11.3	23.3	7.5	4.5	7.9	5.2	1.9	1.3	5.8	2.2	2.7
Botswana.....	76	100.0	12.2	4.1	25.2	14.4	11.8	4.1	1.8	0.0	1.3	11.8	0.9	12.5
Cameroon.....	123	100.0	27.6	9.3	27.7	3.9	16.8	3.6	3.9	0.7	2.2	3.4	0.8	0.0
Ethiopia.....	99	100.0	30.0	9.9	37.4	2.4	1.0	7.8	0.5	0.0	0.0	6.1	2.4	2.5
Ghana.....	83	100.0	36.3	10.2	19.7	5.6	6.2	2.2	3.4	0.6	0.0	10.0	4.5	1.2
Kenya.....	258	100.0	32.0	11.9	32.4	1.5	0.8	8.0	1.2	0.8	0.0	7.5	1.6	2.4
Nigeria.....	384	100.0	29.1	9.0	32.2	6.0	3.6	4.9	3.3	0.6	0.4	5.5	2.2	3.3
Senegal.....	79	100.0	28.3	8.3	27.1	8.7	6.3	4.4	4.0	0.0	3.6	4.9	3.2	1.3
South Africa.....	2,364	100.0	21.3	12.6	18.4	10.4	5.0	9.9	7.4	3.0	1.7	5.6	1.6	3.1
Tanzania.....	86	100.0	44.8	16.4	20.0	1.5	2.3	6.1	0.0	0.0	1.2	4.0	3.7	0.0
Uganda.....	90	100.0	35.3	7.0	32.1	0.0	0.0	5.0	1.1	1.7	0.0	6.5	10.7	0.6
Zimbabwe.....	96	100.0	34.9	7.6	30.7	0.5	2.1	5.5	2.6	0.7	0.9	10.1	1.2	3.1
All others.....	481	100.0	38.8	9.2	28.4	2.5	2.6	4.5	2.7	0.7	1.6	4.3	3.7	1.1
Other														
Australia.....	15,809	100.0	30.2	12.3	14.9	7.3	6.8	7.5	6.6	3.7	1.4	4.2	2.4	2.6
Canada.....	24,803	100.0	29.0	14.6	9.9	8.0	7.3	6.9	8.6	3.9	2.0	4.6	2.6	2.4
New Zealand.....	3,034	100.0	25.3	9.5	23.5	5.3	4.2	10.1	5.1	4.8	1.5	4.9	1.7	4.2
All others.....	52	100.0	31.4	12.3	23.8	4.2	0.0	8.9	5.4	1.0	2.9	9.6	0.0	0.5

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Publication counts from set of journals classified and covered by *Science Citation Index (SCI)* and *Social Sciences Citation Index (SSCI)*. Articles assigned to region/country/economy on basis of institutional address(es) listed on article. Articles on fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Countries with article output <0.0% of world output in 2003 grouped in "all others" except Luxembourg. China includes Hong Kong.

SOURCES: Thomson ISI, *SCI* and *SSCI*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-46
Breadth of international S&E collaboration, by country/economy and income level: 1996 and 2003

Income level, rank, and country/economy	Collaborating countries	
	1996	2003
High income		
1 United States.....	155	172
2 United Kingdom.....	144	158
3 France.....	126	146
4 European Union.....	136	143
5 Germany.....	123	136
6 Netherlands.....	110	131
7 Canada.....	110	130
8 Japan.....	97	128
9 Italy.....	110	126
10 Belgium.....	111	121
11 Sweden.....	100	116
12 Spain.....	88	115
13 Australia.....	101	114
14 Denmark.....	89	112
15 Austria.....	78	101
16 Israel.....	70	91
17 South Korea.....	54	91
18 Ireland.....	53	77
19 Taiwan.....	52	69
20 Singapore.....	50	64
Middle and low income		
1 India.....	82	107
2 Brazil.....	83	106
3 South Africa.....	76	104
4 China.....	83	102
5 Mexico.....	77	98
6 Russia.....	82	94
7 Turkey.....	57	94
8 Poland.....	70	90
9 Argentina.....	55	87
10 Thailand.....	60	80
11 Chile.....	63	78
12 Hungary.....	71	77
13 Kenya.....	66	75
14 Egypt.....	60	72
15 Ukraine.....	59	68
16 Zimbabwe.....	37	67
17 Saudi Arabia.....	42	63
18 Nigeria.....	49	61
19 Morocco.....	41	60
20 Algeria.....	33	54
21 Armenia.....	34	43
22 Ethiopia.....	26	40

NOTES: Data are number of countries that have jointly authored publications (based on institutional address) with indicated country. Countries ranked by number of collaborating countries in 2003.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations. Income classification by the World Bank, <http://www.worldbank.org/data/countryclass/countryclass.html>.

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 1988

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15							Japan	East Asia-4		
	Total	International		Total	France	Germany ^a	Italy	Netherlands	Spain	UK		Total	China	South Korea
Major S&E article producers														
United States.....	187,225	19,294	na	47.0	7.4	9.4	5.1	3.0	1.6	10.6	7.9	4.6	2.7	0.8
EU-15.....	144,157	25,179	48.2	na	na	na	na	na	na	na	4.0	2.0	1.7	0.1
Austria.....	2,678	782	20.9	54.1	4.3	29.0	4.3	2.7	0.5	5.7	2.2	0.6	0.5	0.0
Belgium.....	4,386	1,425	21.1	57.8	18.0	7.9	4.7	11.3	2.2	7.3	1.5	0.3	0.3	0.0
Denmark.....	4,044	1,090	25.9	50.6	3.9	10.2	5.0	2.5	1.0	11.0	2.0	0.5	0.5	0.0
Finland.....	3,185	724	27.6	47.6	4.2	5.9	1.8	3.4	0.3	7.9	1.6	0.5	0.5	0.0
France.....	24,393	5,681	25.2	41.5	na	9.2	7.0	2.9	4.1	8.3	2.1	1.0	0.8	0.1
Germany ^b	29,164	6,435	28.6	38.7	8.1	na	4.4	4.0	1.6	8.2	3.8	1.2	1.0	0.1
Greece.....	1,487	448	34.4	48.8	11.3	12.7	2.1	1.5	0.5	16.1	1.2	0.3	0.3	0.0
Ireland.....	941	286	21.3	58.5	7.2	5.7	2.2	4.0	1.1	33.2	1.7	2.1	1.9	0.0
Italy.....	12,821	3,096	31.3	45.1	12.4	8.5	na	2.5	2.4	10.7	1.4	1.4	1.2	0.1
Netherlands.....	9,797	2,192	27.8	51.8	7.8	12.0	3.8	na	1.6	12.4	2.1	0.8	0.7	0.0
Portugal.....	542	203	21.3	67.9	15.7	7.8	2.1	5.5	4.9	25.4	0.7	0.3	0.3	0.0
Spain.....	6,109	1,255	24.6	58.4	18.8	8.4	6.9	2.6	na	15.1	1.7	0.1	0.1	0.0
Sweden.....	8,767	2,211	31.5	42.1	4.9	7.4	3.8	2.8	0.7	8.4	2.1	0.9	0.7	0.0
United Kingdom.....	40,335	7,125	29.7	36.1	6.6	7.4	4.9	3.7	2.5	na	2.2	1.9	1.4	0.1
Japan.....	36,041	3,097	49.5	25.5	3.9	7.8	1.6	1.5	0.7	5.3	na	6.7	4.1	1.4
East Asia-4.....	8,194	1,824	50.9	20.9	3.4	4.4	2.3	1.0	0.1	7.1	13.1	na	na	na
China.....	5,256	1,181	44.8	26.1	4.3	5.4	3.1	1.4	0.1	8.2	12.0	0.9	na	0.1
Singapore.....	468	111	21.9	26.8	1.2	0.6	0.9	0.0	0.0	18.5	6.8	4.8	2.6	0.6
South Korea.....	909	249	60.6	9.0	2.4	3.1	0.9	0.4	0.0	1.7	21.8	1.0	0.3	na
Taiwan.....	1,581	303	71.9	6.3	1.4	1.1	0.4	0.2	0.0	2.5	11.5	2.8	1.8	0.4
Other regions/countries														
Other Asia														
Bangladesh.....	129	63	34.1	39.1	0.0	4.4	4.4	0.0	0.0	20.5	4.4	0.7	0.0	0.0
India.....	9,403	976	34.5	38.5	4.3	10.9	3.0	1.6	0.4	14.4	4.5	0.7	0.4	0.0
Indonesia.....	106	81	23.3	37.3	8.9	0.7	0.0	13.4	0.0	10.9	12.4	4.1	0.6	1.0
Malaysia.....	254	83	18.3	38.9	3.1	4.1	0.0	0.0	0.0	29.2	10.2	5.7	2.4	1.4
Pakistan.....	277	78	27.0	43.7	0.0	8.4	1.2	0.0	0.0	22.8	3.1	0.0	0.0	0.0
Philippines.....	171	83	38.2	19.0	4.4	7.0	1.1	1.7	0.0	2.3	20.4	1.8	1.5	0.0
Sri Lanka.....	144	66	20.0	45.8	10.9	7.7	0.0	2.7	0.0	16.4	3.6	0.9	0.0	0.9
Thailand.....	397	205	29.5	31.8	2.0	4.5	0.0	1.4	0.0	16.8	17.3	1.2	0.2	0.5
Vietnam.....	71	37	0.0	55.2	14.7	12.9	2.6	8.6	0.0	0.0	0.0	0.0	0.0	0.0
Other Western Europe														
Cyprus.....	18	5	0.0	81.8	0.0	0.0	27.3	0.0	0.0	36.4	0.0	0.0	0.0	0.0
Iceland.....	94	44	3.3	58.3	3.0	5.3	0.0	0.0	0.0	31.5	1.0	0.0	0.0	0.0
Norway.....	2,564	684	3.1	55.3	2.6	7.6	1.9	1.9	0.5	12.0	1.3	0.6	0.4	0.0
Switzerland.....	6,764	2,485	2.8	59.2	12.6	16.5	9.8	2.8	1.7	7.0	2.4	0.8	0.8	0.0
Turkey.....	576	129	5.4	44.4	4.1	15.4	1.8	2.0	0.5	14.9	1.1	0.5	0.5	0.0
Yugoslavia.....	1,482	491	30.2	43.8	4.8	19.6	4.9	1.8	0.5	5.2	1.2	0.5	0.2	0.0

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 1988

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15						East Asia-4				
	Total	International		Total	France	Germany ^a	Italy	Netherlands	Spain	UK	Japan	Total	China	South Korea
Eastern Europe/former USSR	43,219	3,485	20.5	62.2	8.7	13.3	6.6	2.7	0.8	6.1	2.1	0.5	0.4	0.0
Bulgaria.....	1,233	270	8.3	41.0	7.2	8.5	4.8	0.4	0.1	5.0	1.6	0.1	0.1	0.0
Hungary	2,110	718	24.3	43.4	4.8	11.0	4.5	1.9	0.6	4.6	2.6	0.1	0.1	0.0
Poland.....	4,696	1,211	21.4	53.3	9.1	14.2	5.7	2.9	0.8	6.0	1.0	0.5	0.5	0.0
Romania.....	440	88	18.7	43.6	4.9	6.9	14.1	2.5	1.1	6.0	3.0	2.1	2.1	0.0
Former USSR.....	32,240	615	8.8	44.5	5.4	22.4	4.4	1.5	0.4	2.7	1.1	0.3	0.2	0.0
Central/South America	6,612	1,896	44.9	41.1	10.3	7.1	4.4	1.2	4.3	8.3	1.7	0.2	0.1	0.0
Argentina	1,566	266	31.1	46.0	16.0	7.8	7.5	0.9	2.9	5.5	0.3	0.0	0.0	0.0
Brazil.....	2,100	621	39.6	38.9	10.4	8.5	4.1	1.1	1.7	8.3	1.8	0.5	0.3	0.0
Chile.....	820	247	37.6	38.4	7.3	8.7	4.0	1.7	9.9	2.8	1.4	0.0	0.0	0.0
Colombia.....	118	59	59.8	25.6	4.4	6.2	4.0	0.0	1.5	8.5	1.5	0.0	0.0	0.0
Costa Rica.....	80	47	59.1	21.3	0.0	11.3	0.0	2.0	1.3	1.6	0.0	0.0	0.0	0.0
Cuba	98	55	5.3	51.1	5.9	0.0	15.6	0.0	1.6	0.8	0.0	0.0	0.0	0.0
Mexico	1,058	321	50.4	31.1	8.5	4.5	1.0	1.6	6.4	5.8	0.7	0.0	0.0	0.0
Peru	108	70	41.1	39.5	9.5	8.2	0.8	0.0	4.1	9.0	4.7	0.3	0.3	0.0
Uruguay	50	16	19.6	46.4	11.3	6.2	0.0	0.0	6.2	6.2	0.0	0.0	0.0	0.0
Venezuela.....	360	124	40.6	37.9	7.0	1.5	4.0	0.0	5.9	14.0	2.0	0.0	0.0	0.0
Near East/North Africa	9,326	2,691	49.9	36.3	13.2	7.6	1.4	1.0	0.3	9.3	1.1	0.3	0.3	0.0
Algeria.....	109	78	3.1	86.4	74.5	1.7	1.5	0.0	0.0	5.6	0.0	0.0	0.0	0.0
Egypt.....	1,292	306	31.9	38.4	8.5	12.2	2.2	0.7	0.0	10.7	1.5	0.5	0.5	0.0
Iran	112	47	41.1	33.0	5.8	1.9	3.9	0.0	1.3	18.1	0.0	2.6	2.6	0.0
Israel.....	5,845	1,706	62.4	24.6	5.2	8.3	1.1	1.2	0.2	5.2	1.2	0.3	0.1	0.0
Jordan.....	191	55	41.8	34.1	2.5	8.2	0.0	0.0	0.0	20.1	0.0	0.0	0.0	0.0
Kuwait.....	342	74	22.1	42.4	1.3	1.3	0.0	0.7	0.0	30.7	2.8	0.9	0.9	0.0
Lebanon.....	64	17	41.2	43.7	30.3	0.0	0.0	3.4	0.0	10.1	0.0	0.0	0.0	0.0
Morocco.....	178	119	14.6	79.1	72.6	2.3	0.8	0.0	1.7	1.2	0.8	0.8	0.8	0.0
Oman	22	14	19.8	58.9	8.7	4.7	0.0	11.6	0.0	21.1	0.0	0.0	0.0	0.0
Saudi Arabia.....	638	131	36.2	28.9	0.0	0.7	2.7	0.7	0.0	23.4	0.0	0.0	0.0	0.0
Tunisia.....	139	79	3.5	94.3	88.1	1.2	1.2	1.2	1.2	0.0	0.0	0.6	0.6	0.0
United Arab Emirates.....	29	11	11.0	39.0	4.9	8.5	0.0	0.0	0.0	25.6	2.4	0.0	0.0	0.0
Sub-Saharan Africa.....	5,195	1,247	29.0	51.1	11.5	5.8	2.6	1.9	0.1	19.4	2.1	0.5	0.2	0.0
Cameroon.....	52	31	14.2	68.7	42.9	0.0	0.0	0.0	0.0	20.0	3.8	0.0	0.0	0.0
Ethiopia.....	91	37	10.3	61.5	0.0	9.4	8.5	2.6	0.0	25.6	0.0	0.0	0.0	0.0
Ghana	48	18	20.2	60.0	7.1	0.0	6.3	3.2	0.0	34.0	9.5	0.0	0.0	0.0
Kenya.....	371	146	35.5	34.8	1.5	1.8	0.0	1.7	0.0	22.9	3.3	0.0	0.0	0.0
Nigeria	966	153	37.5	43.1	3.3	6.8	2.1	1.7	0.2	23.8	1.9	0.2	0.2	0.0
Senegal.....	0	0	na	na	na	na	na	na	na	na	na	na	na	na
South Africa.....	2,724	385	35.7	36.3	2.5	9.6	2.7	0.9	0.2	15.4	2.2	0.5	0.0	0.0
Tanzania.....	86	39	12.8	46.8	3.7	7.0	0.0	3.1	0.0	16.7	2.3	0.0	0.0	0.0
Uganda.....	25	7	0.0	75.1	14.0	0.0	4.0	0.0	0.0	57.1	0.0	0.0	0.0	0.0
Zimbabwe.....	144	52	23.9	43.3	0.0	0.0	0.0	5.4	0.0	25.1	0.0	0.0	0.0	0.0

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 1988

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15							Japan	East Asia-4		
	Total	International		Total	France	Germany ^a	Italy	Netherlands	Spain	UK		Total	China	South Korea
Other														
Australia.....	10,951	1,985	37.3	32.8	2.3	5.4	1.3	1.3	0.2	17.9	3.3	3.6	2.4	0.1
Canada.....	24,008	4,906	51.3	27.3	7.3	3.2	1.6	1.6	0.6	7.8	3.6	2.2	1.5	0.2
New Zealand	2,349	493	35.6	25.5	2.7	2.2	0.3	0.8	0.1	16.5	2.5	0.8	0.7	0.0

na = not applicable

EU = European Union; UK = United Kingdom; USSR = Union of Soviet Socialist Republics

^aIncludes former East Germany.^bIncludes former West Germany only.

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). China data include Hong Kong. Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2006

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 1996

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15							Japan	East Asia-4		
	Total	International		Total	France	Germany	Italy	Netherlands	Spain	UK		Total	China	South Korea
Major S&E article producers														
United States.....	221,414	39,046	na	46.9	6.9	9.9	5.6	3.1	2.4	10.2	8.3	6.6	2.6	2.0
EU-15.....	215,494	58,576	41.4	na	na	na	na	na	na	na	4.9	3.0	2.2	0.3
Austria.....	4,902	2,194	18.2	50.9	5.0	25.0	4.5	2.5	2.0	6.6	1.5	1.2	1.0	0.2
Belgium.....	7,641	3,514	15.8	60.6	17.1	8.5	5.0	10.4	3.4	9.1	1.9	0.9	0.7	0.1
Denmark.....	6,036	2,632	20.3	54.1	5.6	8.9	5.8	3.6	2.7	11.0	1.9	0.9	0.4	0.1
Finland.....	5,456	1,950	22.8	46.0	4.2	7.6	3.7	2.7	1.5	7.2	3.0	1.3	0.9	0.1
France.....	36,933	13,105	21.0	43.2	na	9.3	7.3	2.9	4.9	8.7	2.3	1.1	0.8	0.1
Germany.....	48,333	16,464	24.6	38.1	7.4	na	4.9	3.9	2.3	8.4	3.3	2.1	1.7	0.2
Greece.....	2,910	1,106	21.3	58.6	11.3	11.1	8.1	2.1	2.5	15.8	0.9	1.2	0.7	0.3
Ireland.....	1,666	695	15.6	68.1	6.2	8.0	4.9	5.1	2.8	33.0	0.7	1.1	0.5	0.1
Italy.....	23,581	8,011	25.8	46.2	11.1	8.7	na	3.4	4.0	10.4	2.2	1.2	1.0	0.1
Netherlands.....	15,638	5,604	22.4	52.3	6.8	11.3	5.3	na	2.4	12.1	2.2	0.8	0.6	0.1
Portugal.....	1,549	807	10.9	70.0	13.9	7.2	5.0	5.3	9.8	19.1	1.5	1.4	1.0	0.1
Spain.....	14,901	4,771	19.8	55.5	13.9	8.1	8.2	3.2	na	12.2	1.1	0.6	0.4	0.1
Sweden.....	12,461	4,875	21.8	44.6	5.3	7.9	4.2	2.9	2.0	8.3	3.3	1.9	1.4	0.3
United Kingdom.....	56,923	16,292	25.4	39.8	7.2	8.4	5.7	4.0	3.5	na	3.4	2.6	1.7	0.3
Japan.....	54,614	7,973	41.7	27.3	3.6	6.8	2.3	1.6	0.7	7.0	na	9.5	4.9	3.2
East Asia-4.....	24,923	6,085	46.5	23.9	2.8	5.8	2.2	0.8	0.4	7.8	13.4	na	na	na
China.....	11,923	3,341	32.8	31.2	3.8	8.2	3.0	1.1	0.5	9.1	13.0	5.1	na	1.6
Singapore.....	1,430	449	25.1	25.6	1.5	1.6	0.7	0.2	0.3	16.0	6.4	16.0	12.5	0.2
South Korea.....	5,566	1,490	55.7	13.1	1.5	2.9	2.4	0.5	0.4	3.3	16.6	4.0	3.3	na
Taiwan.....	6,302	1,103	65.6	10.8	2.0	1.9	1.1	0.4	0.4	3.5	7.3	7.2	5.0	0.7
Other regions/countries														
Other Asia														
Bangladesh.....	223	117	30.7	34.7	0.7	1.7	2.9	2.8	0.0	12.5	8.3	0.5	0.3	0.1
India.....	10,688	1,719	34.9	37.6	6.5	10.3	3.5	1.8	1.5	10.2	6.1	2.2	1.2	0.3
Indonesia.....	269	220	23.7	25.4	7.5	4.5	0.0	5.5	0.0	4.0	26.1	3.3	2.1	0.1
Malaysia.....	486	207	10.9	30.8	2.0	1.3	0.6	1.0	0.1	23.3	14.6	16.3	13.5	0.2
Pakistan.....	368	166	32.0	44.8	1.1	8.8	2.3	2.8	0.6	21.8	1.1	3.7	2.8	0.0
Philippines.....	251	163	29.0	23.9	3.0	3.1	0.2	6.0	0.6	7.0	12.3	5.0	3.2	0.0
Sri Lanka.....	109	58	16.3	61.5	5.2	2.7	0.0	1.6	0.0	36.0	6.9	0.0	0.0	0.0
Thailand.....	599	376	30.8	25.5	2.7	2.7	0.5	1.8	0.0	11.0	19.2	3.1	1.6	0.3
Vietnam.....	182	124	9.1	58.1	13.5	11.6	4.0	8.2	0.0	7.8	9.9	4.3	1.3	1.1
Other Western Europe														
Croatia.....	771	278	21.4	53.1	4.9	17.4	13.5	2.6	1.1	5.0	2.4	0.8	0.4	0.0
Cyprus.....	93	57	20.5	56.8	4.8	6.2	12.5	5.4	2.1	10.2	0.0	2.2	1.4	0.6
Iceland.....	221	115	19.4	64.9	1.8	8.2	0.1	2.4	0.7	12.7	2.1	0.4	0.4	0.0
Macedonia.....	52	27	11.7	38.8	0.0	26.6	7.8	0.0	0.0	0.0	0.0	2.2	2.2	0.0
Norway.....	3,850	1,553	19.4	60.7	5.1	7.5	3.3	3.4	2.1	9.3	2.2	1.0	0.8	0.1
Slovenia.....	666	309	18.1	55.0	6.0	12.3	11.1	2.7	1.3	6.4	1.0	1.0	0.7	0.0

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 1996

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15						East Asia-4				
	Total	International		Total	France	Germany	Italy	Netherlands	Spain	UK	Japan	Total	China	South Korea
Switzerland	10,540	5,028	22.9	57.9	10.8	16.7	9.3	3.6	1.5	8.2	2.5	0.9	0.5	0.2
Turkey	2,513	569	30.7	43.2	3.4	7.7	3.8	2.8	0.9	17.7	4.0	1.1	0.6	0.4
Yugoslavia	678	202	22.4	39.7	4.8	9.6	4.1	0.3	4.3	9.0	4.1	1.3	0.7	0.0
Eastern Europe/former USSR	42,102	13,624	20.6	61.8	10.5	18.5	6.9	3.4	2.3	7.7	3.5	1.1	0.5	0.4
Armenia	245	107	18.3	41.8	7.7	10.4	4.1	2.2	4.4	2.5	0.0	0.5	0.5	0.0
Azerbaijan	156	55	4.3	11.6	0.0	4.0	6.0	0.0	0.0	0.0	3.0	1.6	1.6	0.0
Bulgaria	1,253	503	11.1	61.5	9.8	18.3	10.3	2.0	4.6	5.2	3.9	0.7	0.6	0.1
Belarus	759	283	4.4	45.7	5.7	16.5	6.2	1.9	1.4	6.6	1.5	3.2	2.5	0.2
Czech Republic	3,094	1,481	15.4	54.5	9.6	15.4	5.0	3.5	2.7	7.2	2.4	0.4	0.2	0.0
Estonia	373	216	14.6	69.0	9.3	11.7	2.6	1.5	1.1	2.9	0.5	0.2	0.2	0.0
Georgia	176	83	9.4	35.9	6.6	11.8	6.0	2.0	1.6	2.0	2.0	0.2	0.2	0.0
Hungary	2,618	1,343	24.5	50.7	7.2	13.4	5.9	2.7	1.4	8.1	4.0	0.6	0.3	0.2
Kazakhstan	169	43	14.2	13.1	0.0	1.5	1.9	0.0	0.0	0.0	1.9	0.8	0.8	0.0
Latvia	228	105	11.8	64.5	6.8	14.2	2.8	2.2	1.7	5.8	3.9	0.0	0.0	0.0
Lithuania	272	128	12.0	64.0	9.3	13.6	7.0	2.4	1.3	5.7	1.3	0.0	0.0	0.0
Moldova	184	84	2.1	34.0	4.7	13.1	8.7	0.2	1.9	0.0	0.0	0.0	0.0	0.0
Poland	6,239	2,865	18.4	53.7	10.6	14.9	6.6	2.8	2.2	6.4	2.4	0.7	0.3	0.3
Romania	1,169	508	14.6	63.4	15.1	13.8	12.6	2.0	2.2	8.1	1.7	0.9	0.6	0.1
Russia	21,776	5,827	19.5	52.8	8.6	17.7	6.0	3.0	1.7	6.6	3.4	1.3	0.5	0.6
Slovakia	1,558	650	12.5	53.9	8.4	14.4	6.3	2.4	1.9	5.9	1.5	0.3	0.2	0.0
Ukraine	3,195	1,060	9.3	41.6	7.7	12.6	3.6	4.2	1.9	5.1	2.7	0.8	0.3	0.3
Uzbekistan	384	65	7.6	27.4	4.2	12.6	2.2	0.0	0.3	5.3	5.1	3.6	1.9	1.3
Central/South America	13,360	5,484	39.5	43.3	9.9	5.7	4.5	1.3	8.1	8.0	1.8	0.7	0.5	0.1
Argentina	2,720	916	29.1	44.7	9.0	5.6	4.7	1.4	13.9	4.5	1.1	0.7	0.4	0.2
Brazil	5,005	2,090	35.7	39.7	10.3	5.7	5.6	1.2	2.6	8.8	2.2	1.0	0.7	0.1
Chile	1,291	612	31.4	39.8	9.4	8.1	2.7	1.8	6.4	5.3	1.3	0.4	0.4	0.0
Colombia	327	212	35.3	32.2	6.9	3.8	3.4	0.9	11.8	4.8	0.5	1.3	0.7	0.6
Costa Rica	145	121	50.0	30.7	5.3	7.2	0.3	1.1	3.7	7.8	1.0	0.2	0.1	0.0
Cuba	280	157	10.4	44.0	4.1	4.3	4.1	0.1	25.1	1.9	2.6	0.7	0.7	0.0
Mexico	2,759	1,119	40.1	29.6	5.8	3.2	2.4	0.9	7.4	6.9	0.9	0.7	0.4	0.1
Peru	128	97	49.5	28.8	8.1	2.1	0.9	0.0	7.7	4.2	0.0	0.6	0.0	0.0
Uruguay	183	111	19.7	42.4	5.8	6.4	3.9	1.2	8.5	3.9	2.9	0.4	0.0	0.4
Venezuela	574	247	32.7	34.9	9.2	1.9	4.7	1.0	9.4	6.3	1.1	0.9	0.8	0.0
Near East/North Africa	12,329	4,782	39.9	40.8	14.3	8.4	3.2	1.9	1.6	7.3	2.1	0.8	0.4	0.2
Algeria	259	181	4.5	82.2	68.5	2.3	1.3	1.0	1.3	4.2	0.5	0.5	0.5	0.0
Egypt	1,650	535	33.3	33.9	2.6	10.4	3.6	3.0	0.7	7.2	5.1	0.6	0.6	0.1
Iran	393	142	26.5	27.6	5.1	4.2	0.5	0.8	0.8	14.7	8.9	1.1	0.0	0.2
Israel	7,429	2,853	49.3	31.0	5.4	10.0	3.3	2.1	1.4	5.1	1.7	0.9	0.4	0.2
Jordan	209	76	22.1	37.3	3.2	11.2	3.2	0.0	0.6	17.0	1.2	1.2	1.2	0.0
Kuwait	304	114	33.0	33.0	3.3	9.7	0.0	0.7	0.0	11.6	1.3	0.8	0.8	0.0
Lebanon	93	42	54.0	18.6	11.2	2.1	2.2	0.0	0.0	3.0	2.0	5.8	2.4	2.8

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 1996

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15							Japan	East Asia-4		
	Total	International		Total	France	Germany	Italy	Netherlands	Spain	UK		Total	China	South Korea
Morocco.....	472	377	8.2	81.3	66.2	1.9	3.4	0.2	4.6	2.0	0.7	0.1	0.0	0.0
Oman.....	87	40	33.0	27.7	5.6	1.1	0.5	2.1	0.0	14.9	0.0	0.0	0.0	0.0
Saudi Arabia.....	872	216	31.2	31.8	5.3	2.1	1.3	3.0	0.6	16.2	1.9	0.4	0.4	0.0
Tunisia.....	228	125	5.1	81.0	69.4	1.2	3.0	0.5	0.9	2.6	0.6	0.0	0.0	0.0
United Arab Emirates.....	196	89	18.1	35.3	1.4	4.6	0.2	0.0	0.0	26.1	0.5	0.0	0.0	0.0
Sub-Saharan Africa.....	5,252	2,332	25.6	53.4	10.9	6.3	2.9	3.3	0.6	17.5	1.8	1.1	0.6	0.2
Cameroon.....	102	73	10.5	64.2	37.2	2.4	1.2	5.6	0.0	11.4	1.2	0.0	0.0	0.0
Ethiopia.....	131	77	9.4	62.5	2.9	11.2	1.5	2.9	0.0	16.1	1.7	0.0	0.0	0.0
Ghana.....	114	67	16.7	54.8	0.0	11.3	3.6	4.4	0.0	28.5	3.8	0.0	0.0	0.0
Kenya.....	448	301	29.5	42.7	1.7	2.4	2.0	2.1	0.4	24.8	1.6	0.3	0.3	0.0
Nigeria.....	529	177	25.6	45.3	5.2	6.5	5.1	0.8	0.3	22.4	2.7	1.3	0.3	1.0
Senegal Republic.....	111	82	12.0	71.1	47.6	3.2	2.5	4.1	0.0	4.0	0.4	0.0	0.0	0.0
South Africa.....	2,733	808	29.4	38.3	5.3	9.3	2.4	1.3	1.1	14.2	2.0	2.3	1.3	0.3
Tanzania.....	190	148	15.2	59.9	0.8	0.8	4.0	6.8	0.6	16.0	2.4	0.8	0.8	0.0
Uganda.....	72	48	40.7	38.6	2.5	14.7	5.4	1.9	0.2	12.7	0.0	0.0	0.0	0.0
Zimbabwe.....	190	122	24.2	45.6	3.8	2.6	0.7	4.9	0.0	17.1	0.0	1.1	1.1	0.0
Other														
Australia.....	29,556	9,065	47.5	29.3	6.7	4.7	2.2	1.9	1.4	7.2	5.1	4.8	2.8	0.5
Canada.....	16,354	4,394	30.5	37.2	4.3	6.6	2.0	2.1	0.6	15.6	3.6	3.1	2.3	0.4
New Zealand.....	3,289	1,082	31.7	31.7	3.6	5.6	1.0	0.7	0.3	15.2	3.9	2.8	1.8	0.3

na = not applicable

EU = European Union; UK = United Kingdom; USSR = Union of Soviet Socialist Republics

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). China data include Hong Kong. Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2006

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 2003

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15							Japan	East Asia-4		
	Total	International		Total	France	Germany	Italy	Netherlands	Spain	UK		Total	China	South Korea
Major S&E article producers														
United States.....	242,397	60,180	na	44.4	6.0	9.6	5.3	3.0	2.8	9.2	8.4	10.7	4.7	3.6
EU-15.....	255,262	90,779	38.6	na	na	na	na	na	na	na	5.4	5.0	3.5	0.8
Austria.....	7,066	3,622	15.4	53.5	5.4	23.2	6.0	2.9	2.8	5.8	2.5	1.5	1.1	0.2
Belgium.....	9,941	5,547	15.1	56.9	14.5	8.4	4.9	9.3	3.4	9.2	2.1	1.9	1.5	0.2
Denmark.....	7,624	3,873	19.8	51.9	5.5	8.6	4.1	3.9	3.2	10.5	2.0	1.6	1.0	0.4
Finland.....	7,062	3,256	18.6	50.8	4.4	8.7	3.6	3.9	2.2	9.7	2.6	2.1	1.1	0.6
France.....	43,242	19,900	18.7	43.7	na	9.4	7.9	2.9	4.8	8.4	3.0	2.3	1.6	0.4
Germany.....	59,597	26,689	22.7	37.9	7.2	na	5.0	3.9	2.6	8.1	3.5	3.5	2.5	0.5
Greece.....	4,946	2,019	22.7	52.3	8.0	10.7	6.9	2.8	2.5	14.3	2.2	1.1	0.6	0.3
Ireland.....	2,520	1,265	16.4	61.2	4.9	7.8	4.5	4.3	3.5	27.8	1.8	1.9	1.1	0.2
Italy.....	31,567	12,669	24.2	48.7	10.8	9.2	na	3.6	5.3	10.4	2.4	1.3	0.8	0.3
Netherlands.....	18,746	8,905	21.2	53.1	6.7	11.7	5.8	na	2.8	11.8	2.5	1.6	1.1	0.3
Portugal.....	3,758	2,010	13.5	60.6	11.4	6.7	5.6	3.0	10.7	13.3	1.3	1.7	1.3	0.1
Spain.....	21,756	8,624	19.5	52.5	11.1	7.9	9.0	3.0	na	10.4	1.3	1.0	0.7	0.2
Sweden.....	14,374	7,086	20.0	47.1	4.5	9.4	3.8	3.1	2.3	9.6	3.0	2.6	1.9	0.4
United Kingdom.....	62,729	24,999	23.8	41.2	6.9	8.9	5.8	4.1	3.5	na	3.5	3.9	2.6	0.5
Japan.....	67,728	14,534	34.5	25.0	4.0	6.3	2.2	1.5	0.8	5.8	na	16.0	8.0	5.9
East Asia-4.....	63,400	16,110	42.6	22.4	3.1	5.8	1.6	1.0	0.6	6.4	15.8	na	na	na
China.....	34,110	9,132	33.1	26.2	3.7	7.1	1.7	1.2	0.7	7.0	14.4	8.8	na	2.8
Singapore.....	3,934	1,499	28.5	17.9	1.4	2.8	0.7	0.4	0.4	9.1	4.6	24.9	20.4	1.2
South Korea.....	16,114	4,507	47.8	11.7	1.8	3.0	1.4	0.6	0.3	2.6	18.6	6.8	5.3	na
Taiwan.....	10,448	2,178	44.8	11.5	1.4	2.7	1.2	0.4	0.4	3.7	11.7	15.8	11.0	2.6
Other regions/countries														
Other Asia														
Bangladesh.....	333	218	21.5	35.3	0.7	6.7	0.4	1.8	0.1	9.9	19.6	1.0	0.3	0.5
India.....	14,529	3,187	28.2	34.3	5.0	10.9	3.4	1.8	1.2	8.2	10.2	8.3	2.5	2.7
Indonesia.....	379	323	17.8	28.5	5.2	7.2	1.5	7.7	0.4	4.0	24.5	4.5	1.6	0.5
Malaysia.....	731	357	10.8	22.7	1.2	2.5	0.6	2.1	0.4	14.3	11.3	19.6	13.2	1.2
Pakistan.....	520	258	26.4	39.4	2.3	9.5	3.9	1.3	1.2	17.8	7.0	4.1	2.0	1.7
Philippines.....	338	249	25.7	17.0	2.2	2.6	0.8	2.7	0.4	3.1	20.2	7.5	5.5	1.3
Sri Lanka.....	213	129	22.7	36.2	0.7	2.1	0.0	3.8	0.0	22.5	18.1	1.2	1.2	0.0
Thailand.....	1,627	983	32.1	22.9	2.7	2.9	0.5	1.5	0.3	9.0	19.2	5.1	2.2	0.9
Vietnam.....	422	343	9.1	45.5	13.0	6.5	2.4	3.6	0.5	6.0	16.3	8.0	1.5	4.4
Other Western Europe														
Croatia.....	1,131	470	17.3	48.5	7.4	15.6	10.7	1.6	2.2	3.8	1.5	1.7	0.3	0.5
Cyprus.....	167	111	18.3	49.5	2.3	4.8	8.7	2.0	1.0	14.8	0.4	1.8	1.0	0.3
Iceland.....	349	227	19.7	59.1	3.8	3.3	1.4	2.6	1.1	12.8	2.9	1.1	0.3	0.0
Macedonia.....	80	41	12.7	43.0	2.8	10.6	4.0	0.2	0.4	8.2	5.6	0.0	0.0	0.0
Norway.....	4,780	2,403	19.5	58.1	5.3	6.7	3.6	4.5	2.2	10.1	2.0	1.2	0.7	0.3
Slovenia.....	1,367	664	15.4	47.7	5.9	9.5	7.8	3.3	1.2	6.4	6.0	2.2	0.9	0.7

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 2003

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15						East Asia-4				
	Total	International		Total	France	Germany	Italy	Netherlands	Spain	UK	Japan	Total	China	South Korea
Switzerland	13,343	7,711	20.8	57.8	10.4	17.3	7.8	3.0	2.3	7.7	2.5	1.5	0.8	0.4
Turkey	7,062	1,517	37.2	36.7	4.1	7.3	4.0	1.9	1.4	13.1	3.9	1.0	0.3	0.5
Yugoslavia	779	328	16.0	48.2	5.9	14.6	3.7	2.2	3.5	7.4	4.9	2.2	1.9	0.1
Eastern Europe/former USSR	45,967	20,477	20.0	59.2	9.8	18.8	5.9	2.6	2.5	6.4	5.8	2.6	0.9	1.2
Armenia	312	200	18.9	50.6	11.4	19.2	8.8	1.6	1.4	3.7	1.7	2.2	0.3	1.1
Azerbaijan	158	84	6.8	16.9	2.9	3.3	0.2	1.3	0.9	6.5	6.1	0.2	0.2	0.0
Bulgaria	1,299	799	12.2	58.6	8.4	16.5	7.9	1.7	4.0	6.3	3.8	1.6	0.8	0.3
Belarus	762	391	5.8	47.2	4.8	20.9	4.9	0.7	0.2	3.7	3.9	2.7	1.2	1.3
Czech Republic	4,204	2,144	13.9	51.1	10.4	14.9	5.3	2.2	2.4	5.6	4.8	1.3	0.6	0.2
Estonia	550	297	10.7	63.4	3.4	12.1	3.0	1.6	1.8	4.7	1.6	0.4	0.1	0.3
Georgia	202	134	13.0	53.0	5.3	23.4	10.1	0.5	1.6	3.5	2.0	1.8	0.8	1.0
Hungary	3,769	2,140	21.9	51.8	6.3	13.8	4.7	3.0	2.2	7.0	4.1	1.1	0.5	0.5
Kazakhstan	202	113	12.4	32.7	2.0	7.8	7.7	0.7	4.0	7.5	10.2	3.5	0.1	3.4
Latvia	258	168	10.5	55.4	7.4	18.1	3.0	1.6	0.4	5.2	2.2	0.0	0.0	0.0
Lithuania	483	265	18.0	58.0	4.9	11.5	5.5	1.5	1.6	7.8	2.1	0.9	0.1	0.0
Moldova	158	129	10.9	51.1	4.8	16.9	5.1	3.6	4.5	5.5	1.7	0.0	0.0	0.0
Poland	9,328	4,318	19.4	48.8	9.8	14.8	4.6	2.2	2.1	5.3	4.2	1.9	0.7	0.6
Romania	1,612	1,037	12.2	60.5	16.6	13.2	9.9	2.1	3.0	4.6	6.3	1.9	0.7	0.4
Russia	20,630	8,363	18.5	52.1	8.1	18.6	5.5	2.6	2.0	5.0	6.2	3.2	1.2	1.4
Slovakia	1,456	869	10.5	49.2	6.0	12.2	4.4	1.6	1.3	7.1	2.9	0.8	0.4	0.3
Ukraine	3,064	1,672	14.3	43.6	6.7	16.6	3.3	1.6	2.4	5.2	2.9	3.6	0.3	2.7
Uzbekistan	279	143	16.3	28.2	4.2	12.4	5.1	0.2	0.4	2.5	8.8	6.8	1.1	5.7
Central/South America	24,205	10,094	37.4	44.7	9.0	7.0	4.3	1.4	9.7	7.2	2.2	1.4	0.9	0.3
Argentina	4,031	1,716	26.7	42.8	7.2	6.8	4.2	1.3	14.1	4.6	1.7	0.7	0.3	0.1
Brazil	10,779	3,794	33.2	38.7	8.8	7.3	4.4	1.4	3.2	7.2	2.4	1.6	1.1	0.3
Chile	2,236	1,231	28.6	43.7	9.5	7.7	4.3	0.7	10.3	5.1	1.0	1.3	0.5	0.5
Colombia	578	391	31.1	35.6	6.0	2.9	1.3	1.5	13.9	7.1	1.6	1.4	0.6	0.7
Costa Rica	183	158	31.6	33.5	5.8	5.9	0.7	5.5	3.5	4.9	0.9	3.2	0.7	0.8
Cuba	436	302	5.5	50.4	5.5	5.6	7.5	0.2	21.6	4.1	0.6	0.2	0.0	0.0
Mexico	5,002	2,215	38.1	33.4	6.4	4.0	2.6	1.3	10.0	6.0	2.0	1.6	1.1	0.3
Peru	270	232	38.4	31.5	3.8	6.0	2.8	1.2	4.3	6.0	0.4	0.4	0.3	0.0
Uruguay	318	214	23.5	36.0	9.4	2.1	3.2	0.0	7.9	5.2	1.1	0.4	0.4	0.0
Venezuela	822	438	34.3	37.3	9.2	4.4	3.0	0.3	11.6	6.0	1.4	0.5	0.4	0.2
Near East/North Africa	17,434	7,192	31.8	44.2	14.6	9.0	3.8	1.7	2.0	7.2	2.8	2.2	1.2	0.4
Algeria	442	275	3.1	83.2	69.5	2.6	1.7	0.1	2.4	1.9	0.9	0.5	0.3	0.0
Egypt	2,155	763	24.9	37.9	3.1	12.7	4.6	1.5	1.4	7.2	10.1	2.4	1.1	0.8
Iran	2,098	550	23.6	37.4	4.7	5.9	2.6	1.4	0.5	15.1	3.3	2.6	0.9	0.4
Israel	9,122	3,809	41.8	34.3	5.7	10.6	3.8	2.0	1.8	5.4	2.2	2.4	1.6	0.4
Jordan	349	154	18.7	47.6	3.0	16.6	3.2	0.9	0.2	20.2	0.4	1.6	0.8	0.3
Kuwait	325	136	27.3	28.8	0.2	3.6	0.6	0.1	0.4	11.1	0.8	0.7	0.0	0.7
Lebanon	296	136	24.4	49.9	35.9	1.1	2.7	0.4	1.4	8.0	1.0	0.1	0.0	0.0

Coauthorship share of United States, EU-15, Japan, and East Asia-4 on international S&E articles of indicated region and country/economy: 2003

(Percent)

Region and country/economy	S&E articles (number)		United States	EU-15							Japan	East Asia-4		
	Total	International		Total	France	Germany	Italy	Netherlands	Spain	UK		Total	China	South Korea
Morocco.....	692	475	5.2	80.3	51.8	4.8	8.7	0.3	8.6	1.8	0.3	1.2	0.3	0.4
Oman.....	171	100	19.9	31.6	4.8	3.8	0.7	0.4	0.0	16.9	2.4	1.7	0.0	0.4
Saudi Arabia.....	767	333	23.9	25.2	2.8	1.8	1.9	0.7	1.2	10.2	1.1	3.3	1.7	0.4
Tunisia.....	650	372	4.8	83.1	70.4	2.1	2.7	0.5	1.5	1.9	1.0	0.2	0.1	0.0
United Arab Emirates.....	294	167	22.1	37.5	6.1	7.1	0.0	1.7	1.2	9.8	0.8	2.1	1.8	0.0
Sub-Saharan Africa.....	6,293	3,765	24.9	52.7	10.5	7.2	2.5	4.8	1.2	15.7	2.5	1.1	0.6	0.4
Cameroon.....	222	169	10.7	61.0	31.7	6.4	0.6	4.1	1.8	7.7	1.5	1.8	1.1	0.7
Ethiopia.....	188	150	13.1	58.1	4.8	8.4	4.9	8.1	0.8	12.3	2.0	0.2	0.2	0.0
Ghana.....	155	120	21.8	47.6	1.5	10.5	1.7	5.0	0.0	18.3	3.4	1.2	0.9	0.2
Kenya.....	527	438	33.5	42.2	1.7	5.5	0.6	8.2	0.3	18.3	2.4	0.3	0.2	0.1
Nigeria.....	493	193	20.7	39.5	2.1	8.2	7.1	1.3	0.5	15.9	6.0	1.9	0.7	1.0
Senegal Republic.....	164	133	12.6	55.2	34.5	1.7	1.6	3.6	4.2	2.7	0.8	1.0	0.6	0.0
South Africa.....	3,218	1,504	26.2	42.1	5.5	7.7	1.8	3.6	1.4	14.5	2.0	1.6	0.8	0.6
Tanzania.....	207	189	17.0	48.8	0.8	3.7	1.6	4.5	1.2	17.1	4.7	0.3	0.1	0.2
Uganda.....	183	153	34.8	34.6	1.4	1.1	2.9	3.3	0.3	16.4	1.4	0.0	0.0	0.0
Zimbabwe.....	182	148	20.0	39.4	2.5	1.8	1.8	4.4	0.0	15.1	0.4	0.5	0.5	0.0
Other														
Australia.....	20,259	7,879	27.3	36.7	3.6	6.3	2.8	2.6	1.2	13.6	5.1	9.5	6.6	1.0
Canada.....	32,145	12,978	43.7	24.1	5.8	5.0	2.5	1.8	1.4	7.5	3.8	5.5	3.4	1.0
New Zealand.....	4,034	1,717	29.2	30.5	2.5	4.4	1.4	1.7	0.9	15.9	3.0	4.3	2.3	0.8

na = not applicable

EU = European Union; UK = United Kingdom; USSR = Union of Soviet Socialist Republics

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). China data include Hong Kong. Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-50

(Page 1 of 2)

Coauthorship share of Eastern Europe and former USSR and selected countries of Western Europe and Asia on international S&E articles of indicated region and country/economy: 1988

(Percent)

Region and country/economy	S&E articles (number)		Other Asia		Other Western Europe	Eastern Europe/former USSR		
	Total	International	Total	India		Total	E. Europe	Former USSR
Major S&E article producers								
United States.....	187,225	19,294	2.7	1.7	5.0	3.0	2.3	0.8
EU-15.....	144,157	25,179	3.2	1.9	10.1	9.5	5.5	3.9
Austria.....	2,678	782	2.0	1.0	6.7	8.1	5.8	2.3
Belgium.....	4,386	1,425	1.1	0.7	3.9	3.4	1.9	1.5
Denmark.....	4,044	1,090	1.1	0.4	7.1	4.0	1.9	2.2
Finland.....	3,185	724	0.7	0.5	5.1	8.0	3.6	4.3
France.....	24,393	5,681	1.2	0.7	6.1	4.4	2.8	1.6
Germany.....	29,164	6,435	2.3	1.7	8.6	6.3	4.5	1.8
Greece.....	1,487	448	0.2	0.1	3.5	4.4	3.8	0.7
Ireland.....	941	286	0.7	0.3	1.6	1.4	1.2	0.2
Italy.....	12,821	3,096	1.0	0.8	7.2	5.3	3.5	1.8
Netherlands.....	9,797	2,192	1.4	0.6	4.3	3.9	2.4	1.5
Portugal.....	542	203	0.1	0.0	2.0	0.5	0.5	0.0
Spain.....	6,109	1,255	0.4	0.4	3.6	1.8	1.0	0.8
Sweden.....	8,767	2,211	1.2	0.3	8.9	4.6	2.9	1.7
United Kingdom.....	40,335	7,125	3.4	1.9	4.4	2.6	1.8	0.8
Japan.....	36,041	3,097	3.4	1.2	2.5	1.9	1.2	0.7
East Asia-4.....	8,194	1,824	1.0	0.3	1.5	0.9	0.6	0.2
China.....	5,256	1,181	0.6	0.3	1.9	1.3	0.9	0.2
Singapore.....	468	111	5.0	2.0	1.7	0.9	0.0	0.9
South Korea.....	909	249	1.8	0.1	0.2	0.5	0.5	0.0
Taiwan.....	1,581	303	0.9	0.2	0.7	0.0	0.0	0.0
Other regions/countries								
Other Asia								
Bangladesh.....	129	63	8.8	2.9	1.2	1.5	1.5	0.0
India.....	9,403	976	1.4	na	2.7	2.6	1.0	1.6
Indonesia.....	106	81	2.0	0.3	1.1	0.0	0.0	0.0
Malaysia.....	254	83	5.6	0.7	3.2	0.0	0.0	0.0
Pakistan.....	277	78	11.0	1.2	7.4	0.0	0.0	0.0
Philippines.....	171	83	8.1	2.8	0.0	0.0	0.0	0.0
Sri Lanka.....	144	66	14.5	1.5	2.6	0.0	0.0	0.0
Thailand.....	397	205	5.9	2.2	1.2	0.0	0.0	0.0
Vietnam.....	71	37	5.2	0.0	0.0	37.1	15.5	21.6
Other Western Europe								
Cyprus.....	18	5	0.0	0.0	0.0	0.0	0.0	0.0
Iceland.....	94	44	0.0	0.0	6.6	1.3	0.0	1.3
Norway.....	2,564	684	1.4	1.1	3.4	4.2	3.0	1.2
Switzerland.....	6,764	2,485	1.1	0.6	1.4	3.0	1.7	1.3
Turkey.....	576	129	4.4	1.5	7.1	1.5	0.4	1.1
Yugoslavia.....	1,482	491	0.1	0.0	3.9	13.8	4.5	9.3
Eastern Europe/former USSR								
Bulgaria.....	1,233	270	0.5	0.5	1.9	44.4	5.9	38.5
Hungary.....	2,110	718	1.0	0.8	4.4	17.3	3.1	14.2
Poland.....	4,696	1,211	0.8	0.3	3.5	11.5	2.3	9.2
Romania.....	440	88	1.3	1.1	3.3	25.1	4.9	20.2
Former USSR.....	32,240	615	2.4	1.0	6.3	33.3	33.3	na

Appendix table 5-50

(Page 2 of 2)

Coauthorship share of Eastern Europe and former USSR and selected countries of Western Europe and Asia on international S&E articles of indicated region and country/economy: 1988

(Percent)

Region and country/economy	S&E articles (number)		Other Asia		Other Western Europe	Eastern Europe/former USSR		
	Total	International	Total	India		Total	E. Europe	Former USSR
Central/South America.....	6,612	1,896	0.9	0.6	1.7	2.3	1.0	1.3
Argentina.....	1,566	266	0.3	0.3	2.1	0.1	0.1	0.0
Brazil.....	2,100	621	1.0	0.7	1.3	2.1	1.4	0.7
Chile.....	820	247	0.4	0.4	2.1	0.4	0.4	0.0
Colombia.....	118	59	0.0	0.0	0.0	0.0	0.0	0.0
Costa Rica.....	80	47	2.0	2.0	2.0	0.0	0.0	0.0
Cuba.....	98	55	0.5	0.0	0.5	33.5	2.4	31.1
Mexico.....	1,058	321	0.8	0.8	2.2	2.4	1.8	0.5
Peru.....	108	70	3.2	0.6	1.2	0.0	0.0	0.0
Uruguay.....	50	16	0.0	0.0	0.0	3.1	3.1	0.0
Venezuela.....	360	124	0.8	0.3	1.5	0.5	0.5	0.0
Near East/North Africa.....	9,326	2,691	0.9	0.7	1.9	1.7	1.3	0.4
Algeria.....	109	78	0.0	0.0	0.0	3.5	2.3	1.2
Egypt.....	1,292	306	1.6	1.2	0.9	5.2	4.6	0.6
Iran.....	112	47	1.9	1.9	0.0	4.5	4.5	0.0
Israel.....	5,845	1,706	0.3	0.3	2.2	0.8	0.7	0.1
Jordan.....	191	55	2.2	2.2	1.6	0.0	0.0	0.0
Kuwait.....	342	74	0.9	0.9	3.5	3.8	1.3	2.5
Lebanon.....	64	17	0.0	0.0	0.0	0.0	0.0	0.0
Morocco.....	178	119	0.0	0.0	0.8	0.0	0.0	0.0
Oman.....	22	14	0.0	0.0	5.8	0.0	0.0	0.0
Saudi Arabia.....	638	131	2.2	1.4	1.9	0.0	0.0	0.0
Tunisia.....	139	79	0.0	0.0	0.5	0.0	0.0	0.0
United Arab Emirates.....	29	11	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Saharan Africa.....	5,195	1,247	1.2	0.8	3.4	0.7	0.5	0.2
Cameroon.....	52	31	0.0	0.0	2.9	0.0	0.0	0.0
Ethiopia.....	91	37	0.0	0.0	5.1	0.0	0.0	0.0
Ghana.....	48	18	0.0	0.0	0.0	0.0	0.0	0.0
Kenya.....	371	146	1.9	1.9	6.1	0.0	0.0	0.0
Nigeria.....	966	153	1.8	1.8	0.6	1.3	0.6	0.6
Senegal Republic.....	0	0	na	na	na	na	na	na
South Africa.....	2,724	385	0.1	0.0	2.4	0.3	0.2	0.0
Tanzania.....	86	39	3.9	2.3	5.4	0.0	0.0	0.0
Uganda.....	25	7	0.0	0.0	0.0	14.0	0.0	14.0
Zimbabwe.....	144	52	0.0	0.0	0.0	0.0	0.0	0.0
Other			0.0					
Australia.....	10,951	1,985	3.6	1.1	2.1	0.8	0.5	0.3
Canada.....	24,008	4,906	2.0	1.6	2.4	2.4	1.9	0.5
New Zealand.....	2,349	493	1.5	0.5	1.9	0.2	0.0	0.2

na = not applicable

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). Germany data include former West Germany only. China data include Hong Kong. Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplq, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-51

(Page 1 of 2)

Coauthorship share of Eastern Europe and former USSR and selected countries of Western Europe and Asia on international S&E articles of indicated region and country/economy: 1996

(Percent)

Region and country/economy	S&E articles (number)		Other Asia		Other Western Europe	Eastern Europe/former USSR		
	Total	International	Total	India		Total	E. Europe	Former USSR
Major S&E article producers								
United States.....	221,414	39,046	2.3	1.4	4.5	6.3	3.0	2.6
EU-15.....	215,494	58,576	2.5	1.4	9.1	16.9	7.7	6.4
Austria.....	4,902	2,194	0.7	0.2	16.2	13.3	7.8	2.0
Belgium.....	7,641	3,514	0.9	0.4	3.6	7.2	4.3	2.0
Denmark.....	6,036	2,632	0.8	0.4	6.4	6.1	2.0	2.9
Finland.....	5,456	1,950	0.7	0.5	5.8	13.7	4.7	5.7
France.....	36,933	13,105	1.2	0.8	5.0	9.8	4.9	3.5
Germany.....	48,333	16,464	1.5	1.0	6.6	14.0	5.9	6.0
Greece.....	2,910	1,106	0.4	0.2	5.6	6.9	3.8	2.0
Ireland.....	1,666	695	0.4	0.2	2.9	3.0	1.7	1.2
Italy.....	23,581	8,011	0.8	0.6	6.0	9.4	4.8	3.2
Netherlands.....	15,638	5,604	1.3	0.4	4.7	7.7	3.3	3.1
Portugal.....	1,549	807	0.4	0.2	3.8	4.8	2.3	1.9
Spain.....	14,901	4,771	0.6	0.5	2.7	6.3	3.2	2.2
Sweden.....	12,461	4,875	1.0	0.3	7.8	9.5	3.8	3.1
United Kingdom.....	56,923	16,292	2.3	1.0	4.2	6.1	2.9	2.4
Japan.....	54,614	7,973	3.4	1.2	2.4	5.3	2.3	2.3
East Asia-4.....	24,923	6,085	1.8	0.6	1.3	2.3	0.6	1.2
China.....	11,923	3,341	2.1	0.5	1.6	1.9	0.6	0.9
Singapore.....	1,430	449	5.1	2.8	1.6	1.4	0.7	0.4
South Korea.....	5,566	1,490	0.5	0.3	1.1	3.3	0.8	2.2
Taiwan.....	6,302	1,103	1.0	0.3	0.7	1.9	0.6	0.9
Other regions/countries								
Other Asia								
Bangladesh.....	223	117	15.9	9.1	1.6	0.4	0.0	0.4
India.....	10,688	1,719	1.6	na	2.2	3.0	1.3	1.1
Indonesia.....	269	220	4.8	0.4	1.1	0.2	0.2	0.0
Malaysia.....	486	207	12.4	6.7	0.7	0.4	0.4	0.0
Pakistan.....	368	166	2.2	0.2	3.8	0.9	0.9	0.0
Philippines.....	251	163	8.8	0.9	0.8	0.0	0.0	0.0
Sri Lanka.....	109	58	4.2	0.0	0.0	1.1	1.1	0.0
Thailand.....	599	376	5.6	0.7	1.8	1.0	0.8	0.0
Vietnam.....	182	124	4.1	0.1	1.0	5.8	3.8	1.9
Other Western Europe.....	19,219	7,947	0.7	0.4	na	6.8	3.2	2.4
Croatia.....	771	278	0.2	0.2	8.6	5.3	4.1	0.7
Cyprus.....	93	57	0.8	0.6	7.0	4.6	3.5	1.1
Iceland.....	221	115	0.0	0.0	6.2	2.0	0.5	1.5
Macedonia.....	52	27	0.0	0.0	30.1	13.3	2.2	7.8
Norway.....	3,850	1,553	0.5	0.4	2.4	7.0	2.7	3.2
Slovenia.....	666	309	0.9	0.6	8.8	8.7	5.9	1.8
Switzerland.....	10,540	5,028	0.7	0.4	1.2	6.0	3.1	2.3
Turkey.....	2,513	569	0.6	0.2	3.1	9.2	2.0	1.2
Yugoslavia.....	678	202	0.9	0.5	5.6	16.4	9.7	4.2
Eastern Europe/former USSR.....	42,102	13,624	0.5	0.4	4.3	na	na	na
Armenia.....	245	107	1.0	1.0	3.7	28.5	4.5	20.6
Azerbaijan.....	156	55	0.0	0.0	48.4	23.8	0.0	20.6
Bulgaria.....	1,253	503	0.7	0.3	5.8	10.6	3.9	5.6
Belarus.....	759	283	0.4	0.4	0.5	41.0	13.8	22.6
Czech Republic.....	3,094	1,481	0.5	0.3	3.9	14.4	3.7	4.0
Estonia.....	373	216	0.3	0.3	1.4	9.8	2.6	5.5
Georgia.....	176	83	1.0	1.0	1.1	48.0	5.3	36.9
Hungary.....	2,618	1,343	0.8	0.5	5.3	6.1	3.0	1.6
Kazakhstan.....	169	43	0.6	0.6	0.0	63.6	2.7	47.2
Latvia.....	228	105	0.0	0.0	0.2	15.4	3.3	8.6
Lithuania.....	272	128	0.0	0.0	5.6	11.4	5.4	5.0
Moldova.....	184	84	0.7	0.7	3.3	57.9	31.3	11.6
Poland.....	6,239	2,865	0.5	0.3	3.6	13.6	2.0	5.6
Romania.....	1,169	508	0.8	0.4	2.3	8.4	2.5	2.5

Appendix table 5-51

(Page 2 of 2)

Coauthorship share of Eastern Europe and former USSR and selected countries of Western Europe and Asia on international S&E articles of indicated region and country/economy: 1996

(Percent)

Region and country/economy	S&E articles (number)		Other Asia		Other Western Europe	Eastern Europe/former USSR		
	Total	International	Total	India		Total	E. Europe	Former USSR
Russia	21,776	5,827	0.4	0.3	3.5	12.4	5.0	na
Slovakia	1,558	650	0.5	0.3	3.5	22.9	17.1	3.9
Ukraine	3,195	1,060	0.2	0.2	3.2	36.5	11.0	20.8
Uzbekistan	384	65	0.8	0.8	5.3	44.0	1.2	33.0
Central/South America	13,360	5,484	0.8	0.6	1.4	4.9	2.0	1.9
Argentina	2,720	916	0.3	0.3	1.0	1.4	0.5	0.6
Brazil	5,005	2,090	0.7	0.6	1.6	4.7	1.7	2.0
Chile	1,291	612	0.9	0.1	1.2	3.1	1.3	1.5
Colombia	327	212	1.7	0.8	2.1	3.5	0.3	2.4
Costa Rica	145	121	1.0	0.8	0.3	0.0	0.0	0.0
Cuba	280	157	0.1	0.0	0.5	5.7	3.8	1.5
Mexico	2,759	1,119	1.5	1.2	1.2	8.8	4.0	3.0
Peru	128	97	1.8	0.3	2.7	0.9	0.0	0.0
Uruguay	183	111	0.0	0.0	0.0	1.5	0.7	0.0
Venezuela	574	247	0.0	0.0	0.8	3.4	2.2	1.0
Near East/North Africa	12,329	4,782	1.1	0.6	2.5	4.7	2.2	2.0
Algeria	259	181	0.7	0.0	1.1	3.5	2.4	1.1
Egypt	1,650	535	1.3	0.7	1.7	3.3	2.6	0.5
Iran	393	142	1.0	0.7	2.4	6.9	4.1	1.8
Israel	7,429	2,853	0.6	0.4	2.6	5.5	2.1	2.6
Jordan	209	76	0.0	0.0	0.2	1.6	1.6	0.0
Kuwait	304	114	3.5	2.0	4.1	1.8	1.8	0.0
Lebanon	93	42	1.3	0.0	1.3	2.0	0.0	1.0
Morocco	472	377	0.3	0.2	1.6	2.2	1.2	0.8
Oman	87	40	12.3	7.0	1.6	0.0	0.0	0.0
Saudi Arabia	872	216	1.9	1.0	4.1	2.8	2.4	0.4
Tunisia	228	125	0.0	0.0	5.2	2.5	1.0	1.5
United Arab Emirates	196	89	5.3	2.0	2.1	1.6	1.2	0.5
Sub-Saharan Africa	5,252	2,332	1.8	0.8	3.6	2.5	1.2	0.7
Cameroon	102	73	0.0	0.0	3.6	1.2	0.0	0.0
Ethiopia	131	77	0.0	0.0	6.4	1.7	0.0	1.7
Ghana	114	67	0.0	0.0	4.7	0.0	0.0	0.0
Kenya	448	301	1.3	0.2	3.2	1.0	0.7	0.0
Nigeria	529	177	4.0	0.3	0.3	1.6	1.6	0.0
Senegal Republic	111	82	1.4	0.0	0.8	0.0	0.0	0.0
South Africa	2,733	808	1.7	1.3	2.4	5.5	2.7	1.8
Tanzania	190	148	0.0	0.0	11.3	0.4	0.0	0.4
Uganda	72	48	0.7	0.0	2.0	0.0	0.0	0.0
Zimbabwe	190	122	3.1	0.7	5.7	1.5	0.6	0.1
Other								
Australia	16,354	4,394	2.9	0.8	2.4	2.5	1.0	1.3
Canada	29,556	9,065	1.4	0.9	2.4	4.0	2.1	1.5
New Zealand	3,289	1,082	1.4	0.7	1.5	1.3	0.8	0.5

na = not applicable

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). China data include Hong Kong. Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-52

(Page 1 of 2)

Coauthorship share of Eastern Europe and former USSR and selected countries of Western Europe and Asia on international S&E articles of indicated region and country/economy: 2003

(Percent)

Region and country/economy	S&E articles (number)		Other Asia		Other Western Europe	Eastern Europe/former USSR		
	Total	International	Total	India		Total	E. Europe	Former USSR
Major S&E article producers								
United States.....	242,397	60,180	2.5	1.4	4.5	6.1	2.8	2.4
EU-15.....	255,262	90,779	2.8	1.6	9.0	15.8	7.2	5.9
Austria.....	7,066	3,622	1.2	0.4	7.0	10.8	6.0	1.9
Belgium.....	9,941	5,547	1.0	0.4	3.8	8.3	4.8	2.5
Denmark.....	7,624	3,873	1.3	0.5	7.8	5.7	2.5	2.2
Finland.....	7,062	3,256	0.8	0.4	5.1	12.4	4.5	5.0
France.....	43,242	19,900	1.4	0.8	5.3	9.3	4.9	3.2
Germany.....	59,597	26,689	1.8	1.3	6.4	13.8	5.7	5.7
Greece.....	4,946	2,019	0.4	0.3	5.8	9.3	5.6	2.1
Ireland.....	2,520	1,265	1.2	0.7	3.2	5.4	2.0	2.3
Italy.....	31,567	12,669	1.1	0.8	5.4	7.5	3.6	2.7
Netherlands.....	18,746	8,905	1.5	0.6	4.5	5.9	2.7	2.5
Portugal.....	3,758	2,010	0.8	0.5	2.9	9.3	4.1	3.1
Spain.....	21,756	8,624	0.5	0.4	3.2	5.7	2.9	1.9
Sweden.....	14,374	7,086	1.4	0.5	6.6	9.5	3.4	3.8
United Kingdom.....	62,729	24,999	2.1	1.0	4.5	5.0	2.3	1.8
Japan.....	67,728	14,534	5.4	2.2	2.4	7.1	3.0	3.3
East Asia-4.....	63,400	16,110	2.7	1.6	1.1	3.4	0.9	1.7
China.....	34,110	9,132	1.8	0.8	1.1	2.2	0.8	1.1
Singapore.....	3,934	1,499	4.4	2.0	1.4	1.2	0.8	0.4
South Korea.....	16,114	4,507	2.7	1.7	1.1	5.1	1.0	2.8
Taiwan.....	10,448	2,178	4.2	3.2	1.1	4.2	1.6	2.0
Other regions/countries								
Other Asia								
Bangladesh.....	333	218	12.5	8.3	1.2	0.3	0.1	0.0
India.....	14,529	3,187	2.7	na	2.1	3.1	1.8	0.9
Indonesia.....	379	323	8.7	1.0	0.1	0.7	0.4	0.2
Malaysia.....	731	357	17.5	9.6	2.2	1.5	1.0	0.1
Pakistan.....	520	258	3.4	1.1	3.9	2.2	1.2	0.3
Philippines.....	338	249	12.7	6.2	1.8	0.3	0.0	0.2
Sri Lanka.....	213	129	6.3	2.8	2.9	0.8	0.6	0.0
Thailand.....	1,627	983	4.6	0.8	1.3	0.8	0.3	0.4
Vietnam.....	422	343	6.4	1.5	1.9	3.8	2.1	1.5
Other Western Europe								
Croatia.....	1,131	470	0.3	0.1	15.2	9.9	6.2	2.0
Cyprus.....	167	111	3.0	1.3	9.3	4.3	2.8	1.0
Iceland.....	349	227	0.2	0.0	9.8	2.1	1.1	0.0
Macedonia.....	80	41	4.5	0.7	19.5	13.3	10.5	0.9
Norway.....	4,780	2,403	0.4	0.3	3.3	6.2	2.4	2.6
Slovenia.....	1,367	664	0.9	0.5	11.0	10.4	6.4	2.5
Switzerland.....	13,343	7,711	1.0	0.6	1.4	5.8	2.9	2.2
Turkey.....	7,062	1,517	1.0	0.3	2.8	8.7	2.5	1.5
Yugoslavia.....	779	328	1.7	1.1	6.6	10.9	6.8	2.2
Eastern Europe/former USSR								
Armenia.....	312	200	0.0	0.0	1.9	18.4	5.5	11.4
Azerbaijan.....	158	84	0.0	0.0	52.4	14.2	0.9	9.9
Bulgaria.....	1,299	799	0.9	0.6	4.5	13.9	7.3	5.0
Belarus.....	762	391	0.9	0.8	1.9	33.9	10.0	20.8
Czech Republic.....	4,204	2,144	0.9	0.6	4.2	16.5	5.1	4.2
Estonia.....	550	297	0.6	0.4	4.5	15.3	6.8	4.4
Georgia.....	202	134	0.0	0.0	3.2	23.0	6.9	13.0
Hungary.....	3,769	2,140	1.0	0.8	4.4	8.6	4.7	1.8
Kazakhstan.....	202	113	0.7	0.0	1.6	32.5	4.4	23.7
Latvia.....	258	168	0.1	0.0	3.1	23.8	6.2	10.3
Lithuania.....	483	265	0.3	0.1	4.3	12.8	5.0	3.4
Moldova.....	158	129	0.0	0.0	2.6	30.3	18.2	6.8
Poland.....	9,328	4,318	0.7	0.5	3.9	14.6	3.3	5.2
Romania.....	1,612	1,037	0.4	0.1	4.5	8.7	5.0	1.6

Appendix table 5-52

(Page 2 of 2)

Coauthorship share of Eastern Europe and former USSR and selected countries of Western Europe and Asia on international S&E articles of indicated region and country/economy: 2003

(Percent)

Region and country/economy	S&E articles (number)		Other Asia		Other Western Europe	Eastern Europe/former USSR		
	Total	International	Total	India		Total	E. Europe	Former USSR
Russia.....	20,630	8,363	0.5	0.3	3.6	10.2	5.0	na
Slovakia.....	1,456	869	0.4	0.3	4.0	26.3	19.8	4.7
Ukraine.....	3,064	1,672	0.3	0.3	4.2	24.3	12.2	9.9
Uzbekistan.....	279	143	3.0	0.9	1.2	24.1	0.7	17.7
Central/South America.....	24,205	10,094	1.1	0.8	1.9	4.2	1.5	1.7
Argentina.....	4,031	1,716	0.5	0.3	1.8	2.2	1.5	0.3
Brazil.....	10,779	3,794	1.2	0.9	1.8	4.1	1.5	1.8
Chile.....	2,236	1,231	0.7	0.5	1.3	3.3	1.5	1.2
Colombia.....	578	391	1.8	1.2	3.2	1.5	0.3	0.7
Costa Rica.....	183	158	2.4	1.0	1.0	0.3	0.1	0.0
Cuba.....	436	302	1.2	0.4	1.7	1.0	0.3	0.4
Mexico.....	5,002	2,215	1.1	0.8	1.0	6.7	1.9	3.2
Peru.....	270	232	1.6	0.9	1.9	1.0	0.1	0.5
Uruguay.....	318	214	0.7	0.6	0.3	0.4	0.0	0.4
Venezuela.....	822	438	0.4	0.3	1.1	1.8	0.9	0.5
Near East/North Africa.....	17,434	7,192	1.6	0.9	3.4	5.1	2.5	1.5
Algeria.....	442	275	0.9	0.6	1.3	2.0	1.1	0.1
Egypt.....	2,155	763	1.0	0.6	2.5	3.7	2.5	0.8
Iran.....	2,098	550	4.1	2.3	2.2	2.2	0.7	0.8
Israel.....	9,122	3,809	0.7	0.5	4.0	6.7	2.9	2.4
Jordan.....	349	154	1.4	0.1	1.9	2.6	0.6	0.8
Kuwait.....	325	136	5.1	3.0	1.8	8.8	2.9	0.2
Lebanon.....	296	136	0.1	0.0	1.5	2.9	2.8	0.0
Morocco.....	692	475	0.8	0.6	1.5	2.2	1.4	0.5
Oman.....	171	100	7.8	4.3	7.6	1.5	1.5	0.0
Saudi Arabia.....	767	333	5.3	2.6	3.9	2.6	2.0	0.3
Tunisia.....	650	372	0.5	0.1	1.9	2.0	1.2	0.6
United Arab Emirates.....	294	167	2.4	1.3	2.5	2.7	2.3	0.0
Sub-Saharan Africa.....	6,293	3,765	1.7	0.8	4.7	1.5	1.0	0.3
Cameroon.....	222	169	0.8	0.1	2.9	0.6	0.6	0.0
Ethiopia.....	188	150	1.4	0.6	9.1	0.4	0.4	0.0
Ghana.....	155	120	1.2	0.5	2.9	0.9	0.0	0.4
Kenya.....	527	438	1.3	0.2	3.7	0.2	0.2	0.0
Nigeria.....	493	193	3.5	2.7	0.6	0.4	0.0	0.2
Senegal Republic.....	164	133	1.8	0.2	1.2	0.3	0.0	0.3
South Africa.....	3,218	1,504	1.4	1.1	2.8	3.1	2.2	0.5
Tanzania.....	207	189	1.1	0.7	8.8	0.1	0.0	0.0
Uganda.....	183	153	1.8	0.4	7.6	0.2	0.1	0.0
Zimbabwe.....	182	148	2.8	0.7	6.2	0.1	0.0	0.0
Other								
Australia.....	20,259	7,879	3.1	0.8	2.4	2.4	1.1	0.9
Canada.....	32,145	12,978	1.4	0.9	2.7	3.5	2.0	1.1
New Zealand.....	4,034	1,717	1.8	0.5	2.5	1.3	0.8	0.3

na = not applicable

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). China data include Hong Kong. Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-53

(Page 1 of 2)

Coauthorship share of selected regions and countries on international S&E articles of indicated region and country/economy: 1988

(Percent)

Region and country/economy	S&E articles (number)		Central/South America	Near East/North Africa		Sub-Saharan Africa	Other		
	Total	International		Total	Israel		Total	Australia	Canada
Major S&E article producers									
United States.....	187,225	19,294	4.1	6.6	5.3	1.8	17.2	3.7	12.6
EU-15.....	144,157	25,179	3.8	4.8	2.1	3.2	11.2	3.4	7.1
Austria.....	2,678	782	0.4	1.2	1.0	0.7	3.1	1.2	1.6
Belgium.....	4,386	1,425	1.5	1.6	0.9	3.4	4.3	0.9	3.4
Denmark.....	4,044	1,090	0.4	1.6	1.4	1.2	5.6	1.7	3.7
Finland.....	3,185	724	1.0	0.2	0.0	1.3	6.4	1.9	3.8
France.....	24,393	5,681	3.2	5.5	1.5	2.3	7.3	0.7	6.4
Germany.....	29,164	6,435	2.1	2.8	1.9	1.1	4.7	1.7	2.7
Greece.....	1,487	448	0.9	0.3	0.1	0.2	5.6	0.2	5.0
Ireland.....	941	286	1.4	1.7	0.0	1.7	7.9	1.3	6.6
Italy.....	12,821	3,096	2.2	1.1	0.5	1.0	3.1	0.8	2.4
Netherlands.....	9,797	2,192	0.9	1.2	0.9	1.0	4.7	1.1	3.3
Portugal.....	542	203	3.1	1.0	1.0	0.4	2.5	0.0	2.5
Spain.....	6,109	1,255	6.0	0.6	0.3	0.1	2.7	0.3	2.4
Sweden.....	8,767	2,211	1.1	1.5	1.1	1.2	4.9	1.1	3.7
United Kingdom.....	40,335	7,125	2.1	3.3	1.3	3.2	11.2	4.8	5.2
Japan.....	36,041	3,097	0.8	0.9	0.6	0.7	8.0	1.9	5.6
East Asia-4.....	8,194	1,824	0.1	0.5	0.2	0.3	10.8	4.4	6.0
China.....	5,256	1,181	0.1	0.6	0.2	0.2	11.7	4.7	6.6
Singapore.....	468	111	0.0	0.9	0.9	2.6	28.7	21.1	6.4
South Korea.....	909	249	0.0	0.2	0.2	0.0	4.8	0.6	4.2
Taiwan.....	1,581	303	0.3	0.2	0.2	0.3	5.2	0.5	4.7
Other regions/countries									
Other Asia									
Bangladesh.....	129	63	0.0	1.5	0.0	0.0	8.8	6.3	2.4
India.....	9,403	976	1.4	1.8	0.4	1.0	10.9	2.3	8.0
Indonesia.....	106	81	0.4	0.7	0.0	1.3	17.4	14.7	2.1
Malaysia.....	254	83	0.0	0.5	0.5	1.3	16.4	13.1	3.3
Pakistan.....	277	78	1.2	1.6	0.5	0.0	5.1	1.2	1.2
Philippines.....	171	83	1.4	0.0	0.0	0.9	10.2	3.8	4.2
Sri Lanka.....	144	66	0.3	0.0	0.0	0.3	11.8	9.1	1.4
Thailand.....	397	205	0.0	0.3	0.0	0.8	12.0	8.4	3.0
Vietnam.....	71	37	2.6	0.0	0.0	0.0	0.0	0.0	0.0
Other Western Europe.....	11,453	3,782	0.9	1.2	1.0	1.1	27.8	1.1	26.4
Cyprus.....	18	5	0.0	0.0	0.0	0.0	18.2	0.0	18.2
Iceland.....	94	44	2.0	0.0	0.0	1.3	26.3	0.0	26.3
Norway.....	2,564	684	0.5	1.3	1.1	1.2	27.7	1.2	25.9
Switzerland.....	6,764	2,485	1.1	1.2	1.0	1.2	26.0	1.2	24.6
Turkey.....	576	129	0.7	1.7	0.0	0.7	32.5	0.7	31.8
Yugoslavia.....	1,482	491	0.6	1.2	0.7	0.2	4.6	0.7	3.8
Eastern Europe/former USSR.....	43,219	3,485	1.2	1.4	0.5	0.3	4.5	0.5	4.0
Bulgaria.....	1,233	270	0.1	0.3	0.0	0.0	1.9	0.1	1.8
Hungary.....	2,110	718	0.5	2.0	0.9	0.3	4.0	1.0	2.9
Poland.....	4,696	1,211	1.0	1.2	0.3	0.2	5.7	0.3	5.4
Romania.....	440	88	0.0	2.1	1.1	0.7	0.0	0.0	0.0
Former USSR.....	32,240	615	1.1	0.6	0.1	0.3	1.4	0.3	1.1
Central/South America.....	6,612	1,896	na	1.0	0.7	0.7	5.7	0.6	5.0
Argentina.....	1,566	266	15.1	1.0	0.9	0.6	3.2	1.4	1.8
Brazil.....	2,100	621	7.7	0.3	0.3	0.2	6.5	0.4	5.9
Chile.....	820	247	12.3	2.4	1.3	1.0	4.1	0.8	3.2
Colombia.....	118	59	4.7	0.0	0.0	1.0	7.2	1.5	5.7
Costa Rica.....	80	47	14.6	0.0	0.0	0.0	1.0	0.0	1.0
Cuba.....	98	55	7.3	0.8	0.8	1.1	0.0	0.0	0.0
Mexico.....	1,058	321	5.2	1.1	1.1	0.2	5.9	0.1	5.7
Peru.....	108	70	6.0	0.0	0.0	1.4	2.4	0.0	2.4
Uruguay.....	50	16	17.5	0.0	0.0	13.4	0.0	0.0	0.0
Venezuela.....	360	124	11.4	2.0	1.0	0.0	3.4	0.0	3.4

Appendix table 5-53

(Page 2 of 2)

Coauthorship share of selected regions and countries on international S&E articles of indicated region and country/economy: 1988

(Percent)

Region and country/economy	S&E articles (number)		Central/South America	Near East/North Africa		Sub-Saharan Africa	Other		
	Total	International		Total	Israel		Total	Australia	Canada
Near East/North Africa	9,326	2,691	0.7	na	na	1.4	5.8	0.7	5.1
Algeria.....	109	78	0.0	0.8	0.0	0.0	6.2	2.3	3.9
Egypt.....	1,292	306	0.2	13.1	1.7	1.8	4.7	0.0	4.5
Iran	112	47	0.0	1.3	1.3	0.0	15.5	1.9	13.6
Israel.....	5,845	1,706	0.7	0.3	na	1.3	6.0	0.6	5.4
Jordan.....	191	55	0.0	14.3	0.0	3.3	2.7	2.7	0.0
Kuwait.....	342	74	1.3	10.0	0.0	1.3	11.1	3.9	7.2
Lebanon.....	64	17	0.0	15.1	0.0	0.0	0.0	0.0	0.0
Morocco.....	178	119	0.4	0.0	0.0	0.0	3.6	0.0	3.6
Oman.....	22	14	0.0	5.8	0.0	9.7	0.0	0.0	0.0
Saudi Arabia.....	638	131	2.2	19.7	1.1	3.7	5.2	0.9	4.3
Tunisia	139	79	0.0	0.0	0.0	0.0	1.2	0.0	1.2
United Arab Emirates.....	29	11	0.0	34.1	0.0	8.5	4.9	0.0	4.9
Sub-Saharan Africa.....	5,195	1,247	0.9	2.9	1.7	na	8.0	3.1	4.4
Cameroon	52	31	4.8	0.0	0.0	5.7	0.0	0.0	0.0
Ethiopia.....	91	37	0.0	0.0	0.0	16.2	6.8	0.0	3.4
Ghana	48	18	0.0	0.0	0.0	5.5	4.7	4.7	0.0
Kenya.....	371	146	0.0	0.3	0.3	9.1	9.0	1.9	7.1
Nigeria	966	153	0.6	1.3	0.0	3.8	7.9	1.0	6.9
Senegal Republic.....	0	0	na	na	na	na	na	na	na
South Africa.....	2,724	385	1.8	6.8	5.4	1.9	12.0	6.1	5.1
Tanzania.....	86	39	0.0	2.3	0.0	8.7	17.8	2.3	15.5
Uganda.....	25	7	4.0	0.0	0.0	7.0	0.0	0.0	0.0
Zimbabwe.....	144	52	0.0	0.0	0.0	17.6	15.2	12.5	2.7
Other									
Australia.....	10,951	1,985	0.6	1.0	0.5	2.0	12.8	na	6.4
Canada.....	24,008	4,906	2.1	2.7	1.8	1.1	5.4	2.4	na
New Zealand.....	2,349	493	0.2	0.2	0.0	1.0	30.5	23.6	5.9

na = not applicable

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania. China data include Hong Kong. Germany data include former West Germany only.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-54

(Page 1 of 2)

Coauthorship share of selected regions and countries on international S&E articles of indicated region and country/economy: 1996

(Percent)

Region and country/economy	S&E articles (number)		Central/South America	Near East/North Africa		Sub-Saharan Africa	Other		
	Total	International		Total	Israel		Total	Australia	Canada
Major S&E article producers									
United States.....	221,414	39,046	4.9	4.5	3.4	1.4	14.4	3.2	10.4
EU-15.....	215,494	58,576	5.0	4.1	1.9	2.6	10.4	3.6	6.0
Austria.....	4,902	2,194	1.2	1.4	0.6	0.8	4.1	1.0	2.7
Belgium.....	7,641	3,514	1.9	1.7	0.7	2.0	3.4	0.7	2.6
Denmark.....	6,036	2,632	1.3	1.0	0.7	1.9	5.4	1.9	3.1
Finland.....	5,456	1,950	1.2	1.1	0.7	0.4	4.0	1.2	2.6
France.....	36,933	13,105	3.8	4.5	1.1	1.6	6.4	1.3	4.8
Germany.....	48,333	16,464	1.8	2.3	1.7	0.9	4.8	1.8	2.7
Greece.....	2,910	1,106	0.6	0.7	0.6	0.5	3.4	0.3	3.1
Ireland.....	1,666	695	1.0	0.4	0.2	0.9	5.9	2.0	3.1
Italy.....	23,581	8,011	2.5	1.7	1.1	0.6	3.6	1.1	2.4
Netherlands.....	15,638	5,604	1.2	1.6	1.1	1.2	4.7	1.6	3.0
Portugal.....	1,549	807	3.7	0.4	0.2	0.4	2.7	0.5	2.1
Spain.....	14,901	4,771	8.0	1.6	1.1	0.3	3.4	0.5	2.8
Sweden.....	12,461	4,875	2.3	0.7	0.6	1.8	5.4	2.2	2.6
United Kingdom.....	56,923	16,292	2.7	2.0	0.8	2.5	9.1	4.1	4.0
Japan.....	54,614	7,973	1.2	1.2	0.6	0.5	7.6	2.8	4.3
East Asia-4									
China.....	11,923	3,341	0.9	0.6	0.4	0.4	10.4	3.6	6.3
Singapore.....	1,430	449	0.4	0.8	0.8	0.8	16.9	11.1	4.4
South Korea.....	5,566	1,490	0.4	0.6	0.4	0.3	4.3	1.6	2.5
Taiwan.....	6,302	1,103	0.6	0.7	0.5	0.2	4.1	1.5	2.5
Other regions/countries									
Other Asia									
Bangladesh.....	223	117	0.7	1.5	0.0	1.1	4.6	0.7	3.2
India.....	10,688	1,719	1.7	1.8	0.6	1.0	7.9	2.4	5.1
Indonesia.....	269	220	1.7	1.0	0.0	0.9	11.8	8.0	2.3
Malaysia.....	486	207	0.7	1.7	0.0	2.6	9.0	5.6	2.6
Pakistan.....	368	166	0.4	5.3	0.3	0.5	5.4	1.8	3.5
Philippines.....	251	163	2.5	1.2	0.9	1.4	15.2	12.3	2.8
Sri Lanka.....	109	58	0.0	0.0	0.0	1.6	8.5	5.3	1.6
Thailand.....	599	376	0.9	1.2	1.0	1.8	9.0	6.4	2.2
Vietnam.....	182	124	0.5	0.5	0.0	0.4	6.4	5.2	1.2
Other Western Europe									
Croatia.....	771	278	0.3	1.5	1.2	0.1	6.3	3.8	2.5
Cyprus.....	93	57	0.3	2.4	0.0	0.3	5.1	0.0	5.1
Iceland.....	221	115	0.3	0.3	0.1	0.1	4.3	0.4	3.9
Macedonia.....	52	27	0.0	1.7	0.0	0.0	2.2	2.2	0.0
Norway.....	3,850	1,553	0.6	0.9	0.4	1.4	3.9	0.8	2.9
Slovenia.....	666	309	1.5	1.3	1.3	0.6	3.1	1.0	2.0
Switzerland.....	10,540	5,028	1.2	1.5	1.2	1.1	4.1	1.2	2.7
Turkey.....	2,513	569	0.7	3.3	1.5	0.6	3.5	0.7	2.6
Yugoslavia.....	678	202	1.0	2.6	1.2	1.3	4.8	1.2	3.1
Eastern Europe/former USSR									
Armenia.....	245	107	2.0	1.8	1.8	0.2	2.2	0.1	2.0
Azerbaijan.....	156	55	3.2	1.6	0.0	1.6	0.8	0.0	0.8
Bulgaria.....	1,253	503	1.3	1.2	0.5	0.3	2.9	0.9	1.8
Belarus.....	759	283	0.8	1.1	1.0	0.0	1.4	0.2	1.2
Czech Republic.....	3,094	1,481	2.3	1.6	1.1	0.2	4.4	1.0	3.3
Estonia.....	373	216	1.2	0.4	0.4	0.0	2.7	0.7	2.0
Georgia.....	176	83	1.0	1.0	1.0	0.4	0.0	0.0	0.0
Hungary.....	2,618	1,343	0.9	2.1	1.3	0.4	4.6	1.1	3.5
Kazakhstan.....	169	43	0.0	5.5	5.5	0.0	0.2	0.2	0.0
Latvia.....	228	105	0.6	0.0	0.0	0.0	3.7	0.4	3.3
Lithuania.....	272	128	1.4	1.0	0.7	0.0	3.2	3.2	0.0
Moldova.....	184	84	0.0	0.0	0.0	0.0	2.1	0.0	2.1
Poland.....	6,239	2,865	1.5	1.2	0.7	0.8	3.7	0.5	3.1
Romania.....	1,169	508	2.4	1.4	0.4	0.0	4.2	0.3	3.7
Russia.....	21,776	5,827	1.6	1.5	1.3	0.3	3.3	1.0	2.3

Appendix table 5-54

(Page 2 of 2)

Coauthorship share of selected regions and countries on international S&E articles of indicated region and country/economy: 1996

(Percent)

Region and country/economy	S&E articles (number)		Central/South	Near East/North Africa		Sub-Saharan	Other		
	Total	International	America	Total	Israel	Africa	Total	Australia	Canada
Slovakia	1,558	650	2.0	0.4	0.4	0.5	2.0	0.3	1.6
Ukraine	3,195	1,060	3.0	1.0	0.7	0.6	1.1	0.3	0.8
Uzbekistan	384	65	0.9	1.6	0.9	0.9	2.8	0.1	2.7
Central/South America	13,360	5,484	na	0.9	0.6	0.7	6.0	1.2	4.6
Argentina	2,720	916	15.5	0.9	0.6	0.6	4.8	1.6	2.9
Brazil	5,005	2,090	8.0	0.8	0.4	0.4	5.2	0.9	4.1
Chile	1,291	612	16.1	0.8	0.7	1.0	4.0	1.2	2.8
Colombia	327	212	17.8	0.5	0.4	1.2	3.8	1.4	2.1
Costa Rica	145	121	9.5	0.5	0.0	1.0	5.8	0.3	5.5
Cuba	280	157	29.3	0.1	0.0	2.1	4.6	0.1	4.3
Mexico	2,759	1,119	10.2	1.0	0.8	0.3	5.6	0.9	4.6
Peru	128	97	11.1	0.0	0.0	0.9	3.7	0.3	3.4
Uruguay	183	111	28.4	1.7	1.5	0.2	2.8	0.8	1.8
Venezuela	574	247	19.6	0.6	0.2	0.1	5.9	1.0	4.3
Near East/North Africa	12,329	4,782	1.1	na	na	1.0	5.9	1.8	3.9
Algeria	259	181	1.5	3.3	0.0	0.1	2.1	0.3	1.8
Egypt	1,650	535	1.2	13.6	0.5	1.4	4.5	0.3	4.2
Iran	393	142	0.1	1.7	0.4	0.7	23.0	13.7	9.0
Israel	7,429	2,853	1.2	0.3	na	1.0	6.0	1.9	3.9
Jordan	209	76	0.2	31.5	1.4	2.2	2.6	1.4	1.2
Kuwait	304	114	1.2	15.3	0.0	1.6	4.5	1.6	3.0
Lebanon	93	42	0.0	6.4	0.0	0.0	8.4	0.0	7.0
Morocco	472	377	0.7	1.9	0.2	0.4	2.6	0.0	2.6
Oman	87	40	2.3	12.6	0.0	3.5	7.0	2.1	4.9
Saudi Arabia	872	216	0.0	18.7	0.5	1.6	5.6	0.4	5.1
Tunisia	228	125	1.2	3.2	0.0	0.2	1.0	0.2	0.8
United Arab Emirates	196	89	0.2	34.1	0.0	0.5	2.5	2.5	0.0
Sub-Saharan Africa	5,252	2,332	1.5	2.1	1.3	na	6.7	2.5	3.8
Cameroon	102	73	1.5	1.7	0.0	11.4	4.7	1.2	3.5
Ethiopia	131	77	0.0	0.0	0.0	12.9	5.4	0.0	5.4
Ghana	114	67	0.0	1.8	1.8	14.2	4.0	2.7	1.3
Kenya	448	301	1.8	2.5	1.5	8.2	7.8	0.9	6.7
Nigeria	529	177	3.6	1.9	0.0	8.7	5.0	0.6	3.3
Senegal Republic	111	82	0.4	0.0	0.0	11.6	2.3	0.0	2.3
South Africa	2,733	808	1.7	3.2	2.8	3.7	9.8	5.5	3.5
Tanzania	190	148	0.4	0.0	0.0	6.7	3.0	0.4	2.6
Uganda	72	48	0.6	1.2	0.0	14.5	1.7	1.7	0.0
Zimbabwe	190	122	2.6	0.4	0.0	12.8	3.1	1.2	1.9
Other									
Australia	16,354	4,394	1.5	2.0	1.3	1.3	9.8	na	5.3
Canada	29,556	9,065	2.6	1.9	1.1	0.9	3.3	2.6	na
New Zealand	3,289	1,082	0.8	0.6	0.4	0.7	23.5	17.0	6.2

na = not applicable

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). China data include Hong Kong. Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iPIQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-55

(Page 1 of 2)

Coauthorship share of selected regions and countries on international S&E articles of indicated region and country/economy: 2003

(Percent)

Region and country/economy	S&E articles (number)		Central/South America	Near East/North Africa		Sub-Saharan Africa	Other		
	Total	International		Total	Israel		Total	Australia	Canada
Major S&E article producers									
United States.....	242,397	60,180	5.4	3.5	2.5	1.4	13.0	3.4	8.8
EU-15.....	255,262	90,779	6.2	4.3	1.8	2.8	10.1	4.0	5.4
Austria.....	7,066	3,622	1.6	1.6	0.7	1.0	4.0	1.7	2.2
Belgium.....	9,941	5,547	2.6	2.0	0.8	2.2	4.0	1.4	2.5
Denmark.....	7,624	3,873	1.4	1.3	0.8	1.8	5.4	2.2	2.8
Finland.....	7,062	3,256	1.4	1.2	0.8	0.4	4.6	1.4	2.9
France.....	43,242	19,900	4.4	4.9	1.1	1.8	5.3	1.4	3.7
Germany.....	59,597	26,689	2.6	2.4	1.5	1.0	4.5	1.8	2.4
Greece.....	4,946	2,019	0.6	1.2	0.8	0.4	4.0	0.9	3.0
Ireland.....	2,520	1,265	1.0	1.0	0.2	0.4	6.5	2.6	3.5
Italy.....	31,567	12,669	3.1	1.6	0.9	0.7	4.0	1.6	2.3
Netherlands.....	18,746	8,905	1.5	1.2	0.8	2.0	5.0	2.0	2.7
Portugal.....	3,758	2,010	5.4	1.1	0.6	1.2	2.2	0.8	1.4
Spain.....	21,756	8,624	10.7	1.6	0.8	0.5	3.4	1.1	2.1
Sweden.....	14,374	7,086	1.6	1.0	0.6	1.6	5.6	2.5	2.8
United Kingdom.....	62,729	24,999	2.7	1.9	0.8	2.3	9.0	4.1	3.8
Japan.....	67,728	14,534	1.4	1.3	0.6	0.5	6.3	2.6	3.4
East Asia-4.....	63,400	16,110	0.9	1.0	0.6	0.3	9.8	4.6	4.7
China.....	34,110	9,132	0.9	0.9	0.7	0.2	10.5	5.2	4.9
Singapore.....	3,934	1,499	0.6	1.1	0.5	0.2	15.4	9.1	5.1
South Korea.....	16,114	4,507	0.7	0.7	0.3	0.4	4.5	1.6	2.6
Taiwan.....	10,448	2,178	0.6	1.1	0.6	0.1	4.8	1.3	3.2
Other regions/countries									
Other Asia									
Bangladesh.....	333	218	0.9	3.0	0.5	1.6	2.3	1.9	3.4
India.....	14,529	3,187	2.2	1.9	0.6	1.0	3.4	2.3	0.8
Indonesia.....	379	323	1.5	0.0	0.0	0.8	14.2	10.1	3.4
Malaysia.....	731	357	0.8	2.3	0.1	1.7	9.9	6.8	2.0
Pakistan.....	520	258	1.4	3.7	0.0	1.5	4.9	3.1	1.8
Philippines.....	338	249	1.9	2.2	0.6	2.2	10.7	4.3	3.7
Sri Lanka.....	213	129	0.4	1.0	0.0	1.0	7.6	6.1	1.5
Thailand.....	1,627	983	1.3	0.9	0.5	0.8	11.1	6.9	3.6
Vietnam.....	422	343	0.7	0.2	0.0	0.3	7.7	5.8	1.7
Other Western Europe									
Croatia.....	1,131	470	0.7	1.9	1.4	0.3	2.7	1.1	1.4
Cyprus.....	167	111	0.5	6.0	4.7	1.4	5.5	1.4	4.1
Iceland.....	349	227	0.5	0.4	0.4	0.5	3.7	1.0	2.6
Macedonia.....	80	41	0.0	0.0	0.0	1.0	0.4	0.0	0.4
Norway.....	4,780	2,403	0.9	1.3	0.8	2.1	5.0	1.6	2.9
Slovenia.....	1,367	664	1.9	1.9	1.5	0.2	2.6	0.7	1.7
Switzerland.....	13,343	7,711	1.6	1.5	1.0	1.5	4.6	1.6	2.7
Turkey.....	7,062	1,517	0.6	4.1	1.9	0.2	3.8	1.0	2.5
Yugoslavia.....	779	328	3.5	1.8	1.2	1.2	3.1	0.7	2.2
Eastern Europe/former USSR									
Armenia.....	312	200	3.1	2.0	0.7	0.0	1.1	0.0	1.1
Azerbaijan.....	158	84	0.0	3.1	1.0	0.0	0.3	0.0	0.3
Bulgaria.....	1,299	799	2.0	1.2	0.9	0.0	1.4	0.4	0.9
Belarus.....	762	391	2.2	0.3	0.1	0.4	0.8	0.2	0.7
Czech Republic.....	4,204	2,144	1.3	2.2	1.5	0.3	3.4	0.8	2.4
Estonia.....	550	297	0.4	0.6	0.0	0.2	2.3	1.0	1.4
Georgia.....	202	134	1.5	1.7	1.7	0.0	0.8	0.6	0.2
Hungary.....	3,769	2,140	1.2	2.0	1.3	0.3	3.4	0.7	2.6
Kazakhstan.....	202	113	2.0	2.8	1.8	0.0	1.5	0.0	1.5
Latvia.....	258	168	1.2	1.4	1.0	0.4	2.0	1.1	0.9
Lithuania.....	483	265	1.0	0.8	0.8	0.2	1.5	0.5	0.9
Moldova.....	158	129	0.5	2.0	2.0	0.0	0.9	0.3	0.6
Poland.....	9,328	4,318	1.5	1.1	0.8	0.4	3.6	0.8	2.6
Romania.....	1,612	1,037	1.1	1.4	0.5	0.2	2.8	0.8	1.9
Russia.....	20,630	8,363	1.8	1.3	1.1	0.1	2.6	0.8	1.8

Appendix table 5-55

(Page 2 of 2)

Coauthorship share of selected regions and countries on international S&E articles of indicated region and country/economy: 2003

(Percent)

Region and country/economy	S&E articles (number)		Central/South	Near East/North Africa		Sub-Saharan	Other		
	Total	International	America	Total	Israel	Africa	Total	Australia	Canada
Slovakia	1,456	869	1.3	1.6	0.6	0.3	2.9	0.8	1.8
Ukraine	3,064	1,672	3.1	2.1	1.9	0.1	1.5	0.6	0.9
Uzbekistan	279	143	4.0	3.1	2.9	0.8	3.7	0.0	3.7
Central/South America	24,205	10,094	na	1.1	0.8	0.7	5.3	1.2	3.9
Argentina	4,031	1,716	17.9	1.0	0.7	0.5	4.1	1.3	2.5
Brazil	10,779	3,794	10.1	0.8	0.5	0.6	5.4	1.1	4.1
Chile	2,236	1,231	14.7	1.0	0.9	0.5	3.8	1.2	2.3
Colombia	578	391	17.6	1.9	1.5	1.4	2.7	0.6	2.1
Costa Rica	183	158	21.2	1.5	1.5	1.7	2.8	0.3	2.3
Cuba	436	302	36.2	0.3	0.0	0.0	2.9	0.3	2.5
Mexico	5,002	2,215	9.5	1.3	0.9	0.6	4.7	0.9	3.7
Peru	270	232	20.6	0.1	0.0	1.0	3.2	0.3	2.9
Uruguay	318	214	33.3	0.7	0.7	1.8	1.6	0.9	0.6
Venezuela	822	438	18.6	0.5	0.3	0.2	3.9	0.9	2.7
Near East/North Africa	17,434	7,192	1.5	na	na	1.0	6.3	1.6	4.6
Algeria	442	275	0.6	5.7	0.0	1.1	0.9	0.0	0.6
Egypt	2,155	763	0.8	11.8	0.5	0.8	4.1	0.4	3.6
Iran	2,098	550	0.4	1.3	0.0	0.0	22.8	7.8	14.5
Israel	9,122	3,809	1.9	0.2	na	0.8	4.8	1.3	3.4
Jordan	349	154	1.4	17.8	2.7	0.2	6.4	1.0	5.4
Kuwait	325	136	1.1	15.5	0.3	1.3	8.8	0.6	7.6
Lebanon	296	136	1.0	10.6	0.0	0.1	8.3	2.2	6.0
Morocco	692	475	1.5	2.6	0.2	0.6	3.8	0.3	3.4
Oman	171	100	1.1	12.4	0.9	2.7	11.3	4.7	4.4
Saudi Arabia	767	333	1.4	20.9	0.1	4.6	7.8	1.0	6.2
Tunisia	650	372	0.5	3.5	0.1	0.9	1.7	0.3	1.4
United Arab Emirates	294	167	0.7	20.2	0.5	0.7	8.4	2.1	6.0
Sub-Saharan Africa	6,293	3,765	2.1	1.8	0.8		6.9	3.6	3.0
Cameroon	222	169	1.8	0.3	0.0	16.1	2.5	1.8	0.6
Ethiopia	188	150	0.3	1.1	0.4	10.6	3.5	0.9	2.4
Ghana	155	120	0.0	2.7	1.4	14.0	4.4	0.3	4.1
Kenya	527	438	2.2	1.5	0.7	9.0	3.6	0.9	2.6
Nigeria	493	193	3.8	1.3	0.7	17.9	4.4	2.8	0.9
Senegal Republic	164	133	2.7	1.6	0.0	22.8	0.1	0.0	0.1
South Africa	3,218	1,504	2.6	2.4	1.3	5.0	10.8	6.7	3.4
Tanzania	207	189	1.7	0.5	0.2	13.0	3.9	1.7	2.2
Uganda	183	153	1.0	0.3	0.0	15.5	2.7	0.0	2.4
Zimbabwe	182	148	1.3	0.9	0.9	21.1	7.2	1.9	5.2
Other									
Australia	20,259	7,879	1.6	1.2	0.5	1.6	9.1	na	5.0
Canada	32,145	12,978	2.8	2.3	1.0	0.8	3.9	3.1	na
New Zealand	4,034	1,717	1.3	0.9	0.3	0.9	24.3	17.9	6.3

na = not applicable

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Data are region/country/economy's share of internationally coauthored articles with indicated region/country/economy. Authorship based on institutional address. International articles are those with at least one author at institutional address in given country/economy and one author at foreign address. Share based on article counts calculated on whole-count basis, i.e., each collaborating institution is credited one count. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). China data include Hong Kong. Eastern Europe consists of Bulgaria, Czech Republic, Hungary, Poland, and Romania.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

R&D expenditures and S&E article output of top 200 U.S. academic institutions for R&D, by quartile of R&D growth: 1988–2003

Quartile of R&D growth, academic institution, and rank of institution	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average annual change (%)
	Total R&D (\$ thousands)																
Total annual R&D growth	12,556,884	13,936,321	15,211,303	16,437,641	17,565,552	18,578,852	19,567,508	20,664,342	21,507,439	22,750,433	24,127,079	25,811,543	28,249,837	30,799,741	34,058,273	37,529,309	13.3
Quartile 1	1,714,527	2,002,251	2,252,539	2,492,871	2,752,182	2,967,846	3,187,532	3,416,433	3,710,676	4,011,259	4,291,941	4,798,484	5,444,187	6,265,730	7,003,633	7,995,226	24.4
C.R. Drew University of Medicine & Science (196)	2,826	2,898	4,970	7,043	7,862	6,852	9,347	12,500	16,386	17,205	17,205	24,484	31,045	36,717	48,839	49,888	111.0
George Mason University (178)	3,834	4,220	8,011	9,726	11,930	15,830	18,871	22,221	23,230	19,126	22,543	26,766	26,793	32,881	38,849	44,980	71.5
University of Maryland–Baltimore County (199)	3,975	4,342	5,385	6,809	7,619	7,544	8,117	11,868	14,304	19,799	18,155	21,854	26,044	29,641	36,323	42,906	65.3
North Dakota State University (138)	8,638	10,433	12,468	31,935	34,466	34,971	36,977	40,677	43,661	35,197	40,007	44,696	50,063	64,882	72,105	91,812	64.2
University of Texas–El Paso (200)	2,641	4,168	6,889	9,447	10,147	12,480	12,062	12,705	13,548	15,850	14,092	21,961	20,877	21,889	23,684	27,185	62.0
New Jersey Institute of Technology (144)	8,327	11,402	15,225	16,463	21,126	23,781	29,983	30,940	39,110	38,728	40,982	40,982	47,895	62,747	69,138	73,664	52.3
University of Louisiana–Lafayette (183)	5,092	6,817	8,319	10,232	10,815	11,319	11,099	13,416	13,429	22,381	24,768	30,735	32,692	32,073	47,796	43,769	50.6
University of Central Florida (134)	11,307	30,991	30,618	41,935	27,629	33,922	33,599	37,147	21,488	38,592	35,530	42,466	47,646	79,287	66,351	89,880	46.3
Georgia State University (171)	5,843	7,000	8,942	9,271	10,026	12,133	17,100	17,867	18,114	27,069	31,153	36,523	36,600	38,960	44,564	45,653	45.4
Medical University of South Carolina (117)	20,949	23,017	23,128	25,877	31,900	42,543	46,249	57,495	54,426	57,111	57,940	55,819	65,243	116,687	132,030	150,551	41.2
University of Arkansas for Medical Sciences (151)	9,851	10,834	11,898	14,250	15,889	15,686	22,762	28,389	33,354	37,336	39,487	44,066	49,074	51,921	45,046	63,677	36.4
University of Montana (180)	6,842	6,482	7,332	7,871	10,177	15,169	16,908	18,881	21,421	21,151	20,133	24,372	29,590	33,535	39,367	43,562	35.8
State University of New York–Albany (119)	19,625	24,240	22,034	20,580	35,856	37,860	43,353	38,771	66,247	57,415	50,568	64,278	82,792	70,119	67,493	120,655	34.3
University of Nebraska Medical Center (133)	14,684	17,291	17,844	27,858	31,564	31,669	33,997	38,287	42,612	45,365	50,453	54,205	51,547	60,695	71,000	85,007	31.9
College of William & Mary (159)	8,031	15,394	17,792	18,508	18,890	21,793	20,443	20,597	25,183	24,051	25,966	31,322	33,299	35,829	39,858	46,029	31.5
University of Nevada–Las Vegas (179)	7,369	11,409	15,449	19,491	13,300	19,373	15,486	17,268	16,893	15,628	16,912	20,170	24,215	27,008	30,527	42,205	31.5
Medical College of Georgia (148)	9,925	11,363	12,052	12,082	21,426	24,935	28,020	31,369	35,971	38,725	39,806	41,103	45,596	52,191	51,705	56,398	31.2
University Mississippi, all campuses (149)	15,125	17,092	22,071	24,748	23,361	23,734	25,000	26,862	26,215	26,231	28,079	32,129	44,927	58,410	71,893	85,378	31.0
University of Puerto Rico–Medical Sciences Campus (192)	5,517	6,528	6,293	11,014	18,296	14,622	17,765	17,354	15,005	15,575	19,830	17,114	21,373	23,913	29,089	31,124	30.9
Emory University (53)	60,896	64,713	82,774	91,940	101,398	120,125	136,186	148,178	149,168	163,619	172,884	189,170	206,070	236,997	271,238	323,224	28.7
University of South Florida (84)	40,396	60,973	76,404	72,948	68,713	75,322	86,186	92,758	94,157	99,649	104,325	123,961	145,397	171,550	198,026	213,455	28.6
Boston College (194)	6,137	6,152	8,052	9,810	10,400	10,731	10,724	13,298	14,504	14,746	17,774	21,726	27,767	30,768	31,754	32,158	28.3
Oregon Health & Science University (85)	37,979	43,922	50,682	52,821	61,645	75,148	84,734	96,867	101,745	118,364	130,421	140,247	150,342	155,583	158,729	197,178	27.9
Eastern Virginia Medical School (184)	6,614	8,125	10,496	11,112	11,238	15,818	17,873	17,823	17,730	19,109	21,672	24,096	23,299	26,250	28,572	32,801	26.4
University of Memphis (182)	8,201	9,892	12,073	12,000	12,169	11,740	13,305	14,642	18,429	21,271	22,486	24,280	27,381	29,445	33,625	38,728	24.8
University of Texas Medical Branch–Galveston (103)	33,047	38,717	40,610	45,086	57,672	67,998	72,773	72,569	73,759	77,683	86,488	93,580	97,896	102,722	129,534	153,122	24.2
Indiana University (48)	73,526	81,793	89,191	102,461	117,565	127,877	136,617	145,512	154,260	165,198	171,754	194,790	227,737	259,899	299,080	337,669	24.0
Duke University (25)	113,968	131,090	140,708	164,232	188,678	202,434	220,220	218,703	242,235	251,536	282,388	348,274	356,625	375,133	441,533	520,191	23.8
Vanderbilt University (70)	60,591	65,218	75,062	80,759	95,447	96,181	110,105	111,224	117,003	122,598	135,214	149,675	171,926	186,504	208,305	276,074	23.7
University of Medicine and Dentistry of New Jersey (81)	42,027	54,451	71,789	80,787	84,505	76,410	86,866	96,365	98,535	110,383	114,491	126,277	140,951	162,417	178,156	190,763	23.6
Loyola University of Chicago (153)	8,327	11,303	12,260	22,702	30,099	29,232	36,830	33,098	29,365	30,994	34,241	29,001	30,034	37,156	37,607	37,581	23.4
University of Nevada–Reno (131)	17,867	18,141	21,449	29,303	37,546	38,564	42,176	46,783	47,977	52,703	45,476	47,939	56,248	59,229	66,721	80,553	23.4
Thomas Jefferson University (109)	24,231	29,405	30,969	33,066	41,329	51,106	56,932	65,705	69,154	69,228	69,460	78,410	89,626	88,936	102,974	109,083	23.3
Rush University (127)	19,827	21,741	21,284	27,359	26,184	34,039	39,736	44,322	48,772	49,969	55,277	60,957	68,189	70,219	79,394	89,196	23.3
Dartmouth College (108)	35,563	38,452	43,737	49,384	53,668	59,920	57,845	50,525	52,945	61,619	64,964	69,522	78,874	109,096	126,839	155,795	22.5
University of New Hampshire (122)	22,095	23,720	25,994	29,591	33,744	39,555	43,707	42,548	45,693	45,886	52,359	57,613	72,108	87,879	93,222	96,415	22.4
Drexel University (168)	16,045	17,983	20,079	19,705	23,184	20,314	20,886	19,389	19,322	19,267	19,603	22,397	24,876	27,698	44,465	69,548	22.2

R&D expenditures and S&E article output of top 200 U.S. academic institutions for R&D, by quartile of R&D growth: 1988–2003

Quartile of R&D growth, academic institution, and rank of institution	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average annual change (%)
	Total R&D (\$ thousands)																
Baylor College of Medicine (32).....	106,814	134,681	155,122	161,084	167,998	172,252	186,865	190,375	184,613	192,744	216,528	272,198	334,175	381,461	411,924	461,763	22.2
University of Maryland–Baltimore (59).....	68,787	75,854	83,689	100,163	100,312	111,772	110,866	107,874	122,207	134,808	143,321	140,903	224,346	239,007	266,822	297,271	22.1
Mount Sinai School of Medicine (83).....	49,727	56,856	63,752	66,310	75,561	75,337	86,179	92,008	92,405	94,776	109,448	127,765	149,846	176,946	185,335	214,514	22.1
Wake Forest University (106).....	30,568	37,156	39,654	44,214	49,919	57,646	52,581	68,388	75,331	75,290	76,893	82,827	86,840	98,343	111,634	130,405	21.8
Saint Louis University (160).....	9,700	14,251	17,157	19,183	19,932	20,826	20,844	22,686	25,099	26,517	26,943	27,817	31,002	32,442	35,444	41,189	21.6
Wayne State University (74).....	50,509	59,521	62,455	69,997	81,127	85,627	94,632	106,140	112,151	124,383	138,456	146,832	156,814	175,984	199,007	213,717	21.5
University of Cincinnati (68).....	60,479	69,831	74,461	80,598	90,279	92,512	93,599	91,159	127,733	141,604	159,695	153,002	171,906	192,895	217,739	255,083	21.5
Old Dominion University (189).....	7,252	9,107	10,478	10,040	10,859	14,097	14,911	14,439	17,577	18,583	20,150	23,030	25,058	24,659	29,223	30,324	21.2
University of Pittsburgh (36).....	98,609	111,265	117,716	130,322	157,250	178,778	185,377	186,457	189,826	202,533	213,842	249,477	294,809	348,792	400,200	409,684	21.0
University of California–Los Angeles (7).....	209,338	227,828	246,795	250,033	270,954	277,974	279,869	303,668	354,645	398,865	447,367	477,620	530,826	693,801	787,598	849,357	20.4
Washington University in St Louis (27).....	117,829	128,419	151,249	160,464	170,339	179,329	192,378	209,100	218,640	262,426	269,550	315,606	362,216	406,642	416,960	474,328	20.2
University of Florida (30).....	107,177	125,770	139,678	140,257	140,189	142,966	148,592	199,216	255,099	272,373	274,862	304,447	313,692	347,892	386,316	429,734	20.1
Quartile 2.....	3,375,023	3,775,681	4,156,875	4,570,786	4,967,715	5,369,681	5,668,993	6,041,415	6,294,556	6,668,076	7,230,046	7,772,269	8,556,946	9,392,265	10,441,060	11,566,161	16.2
University of Maine (142).....	17,341	19,974	23,605	27,082	23,213	24,879	29,393	31,901	34,684	33,144	33,106	41,452	54,821	64,070	62,149	68,923	19.8
University of Kentucky (61).....	69,003	69,532	74,959	81,137	92,244	102,911	105,539	111,934	118,721	124,804	161,346	174,034	202,392	211,721	236,275	272,062	19.6
Naval Postgraduate School (150).....	15,515	15,306	17,391	19,397	20,412	24,296	26,538	27,510	30,706	32,333	34,095	34,095	40,827	47,559	54,291	61,025	19.6
University of Texas Southwestern Medical Center–Dallas (58).....	70,392	79,920	85,919	94,511	102,263	114,258	118,398	125,301	130,162	140,589	153,711	165,520	189,216	222,376	263,958	276,692	19.5
George Washington University (118).....	23,522	30,284	32,372	29,791	39,335	41,177	38,429	43,488	49,263	55,158	74,481	66,757	69,300	73,805	86,288	92,454	19.5
University of Akron (190).....	7,114	9,728	10,372	13,405	14,825	17,558	16,783	15,589	15,507	17,999	16,326	16,279	19,495	22,266	28,080	27,953	19.5
University of California–Irvine (71).....	60,100	66,806	78,074	82,523	89,275	100,631	104,778	109,908	119,647	119,669	130,415	141,842	158,437	179,866	209,469	234,656	19.4
University of Texas Health Science Center–Houston (31).....	118,987	132,763	136,990	162,884	167,383	186,261	188,789	196,845	203,767	225,216	243,253	260,433	301,783	338,185	400,525	464,463	19.4
University of Louisville (143).....	22,945	14,466	15,921	16,852	17,400	19,496	20,475	22,835	29,655	33,434	39,147	57,051	64,062	72,857	80,974	88,522	19.1
University of South Carolina (102).....	31,836	40,421	47,477	55,091	54,360	57,062	74,001	79,710	78,619	77,855	92,785	105,835	105,675	111,011	124,208	122,350	19.0
University of Illinois–Chicago (57).....	75,922	83,329	85,268	90,520	102,267	106,952	113,741	119,381	121,540	139,296	151,739	175,093	195,839	233,098	259,852	291,507	18.9
Mississippi State University (89).....	45,005	53,670	58,492	64,335	65,754	70,300	76,201	72,145	84,124	84,157	100,410	110,896	132,503	146,939	158,652	165,922	17.9
Arizona State University (96).....	39,510	44,347	59,849	63,489	69,346	66,142	62,563	77,009	84,653	80,740	92,019	107,184	108,117	118,763	123,016	145,591	17.9
Boston University (73).....	61,505	66,325	73,651	74,881	83,701	91,158	90,504	103,709	110,266	120,392	130,054	141,102	154,029	172,031	192,612	224,841	17.7
Wright State University (173).....	9,551	11,043	13,451	14,646	16,793	19,791	19,388	18,661	17,381	17,291	19,676	23,131	29,092	32,033	30,962	34,860	17.7
University of North Carolina–Chapel Hill (34).....	107,039	122,097	123,113	142,681	161,549	179,157	201,622	209,118	208,529	221,380	235,296	252,767	269,072	303,576	370,806	390,542	17.7
West Virginia University (112).....	28,807	37,569	46,624	49,686	52,482	54,271	58,604	53,072	54,844	63,312	62,362	63,392	66,130	71,311	84,985	104,748	17.6
Montana State University– Bozeman (125).....	25,227	25,968	27,648	30,278	34,419	32,911	36,149	47,998	50,097	49,440	52,292	55,475	65,324	69,593	78,211	91,503	17.5
Northeastern University (166).....	11,894	13,302	14,347	15,973	15,876	18,517	19,104	19,850	17,980	19,822	26,385	30,209	35,340	34,467	38,540	42,931	17.4
University of Washington (3).....	190,735	221,712	245,313	274,423	313,514	335,329	353,945	389,160	406,472	409,959	438,191	482,659	529,342	589,626	627,273	684,814	17.3
University of Pennsylvania (15).....	159,218	173,744	189,390	198,221	222,424	233,829	251,461	272,393	288,430	296,141	333,477	383,569	430,389	469,852	522,269	564,716	17.0
University of California–Santa Cruz (126).....	22,163	23,651	26,347	31,620	36,413	37,886	42,457	44,294	51,062	49,428	56,533	52,902	56,212	64,253	70,967	78,448	16.9
University of Oklahoma (77).....	50,047	53,956	58,645	79,777	92,146	92,019	95,747	102,337	109,071	114,387	126,861	142,085	150,902	148,695	169,373	174,466	16.6
University of California–San Francisco (12).....	193,289	219,446	238,278	268,700	295,784	314,599	312,393	329,742	320,757	343,384	379,970	417,095	443,013	524,975	596,965	671,443	16.5
San Diego State University (135).....	19,370	20,124	22,524	28,570	30,683	32,493	29,309	35,287	43,201	40,586	41,915	45,579	55,002	58,332	64,302	67,053	16.4
Ohio University (176).....	10,863	11,461	12,982	12,796	14,811	15,452	16,425	19,713	18,329	21,008	21,469	21,437	23,767	27,146	36,601	37,527	16.4
Washington State University (88).....	51,319	55,173	66,856	75,244	85,080	92,434	94,819	96,810	98,641	97,700	95,422	96,943	104,796	107,937	146,862	175,181	16.1

R&D expenditures and S&E article output of top 200 U.S. academic institutions for R&D, by quartile of R&D growth: 1988–2003

Quartile of R&D growth, academic institution, and rank of institution	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average annual change (%)
	Total R&D (\$ thousands)																
University of Colorado (22)	128,015	143,720	154,723	160,526	176,266	193,217	234,267	243,932	251,301	269,816	311,203	318,618	353,908	365,472	399,818	436,761	16.1
University of Texas Health Science Center—San Antonio (97)	39,673	42,501	45,663	51,768	65,179	75,239	83,535	87,336	83,028	86,019	82,357	87,804	103,824	115,154	129,616	133,304	15.7
University of Notre Dame (155)	17,845	19,385	19,373	21,302	22,679	23,745	22,833	23,332	24,556	24,116	28,873	30,483	34,524	46,096	52,371	59,803	15.7
University of Alabama—Birmingham (44)	85,030	100,666	110,603	113,317	117,844	133,790	141,735	158,779	170,193	203,758	227,720	232,115	233,461	231,702	255,053	284,497	15.6
University of Kansas (80)	51,723	57,111	61,144	65,982	75,004	85,134	95,701	100,702	100,649	108,893	117,115	132,752	148,670	156,467	172,131	173,024	15.6
University of New Mexico (79)	47,729	52,970	57,728	67,344	72,863	76,736	90,315	129,354	116,618	116,152	125,910	115,850	133,980	156,619	150,598	158,239	15.4
Colorado School of Mines (187)	8,832	9,364	10,943	12,971	12,783	13,644	13,880	16,585	19,291	19,221	20,681	21,715	21,795	23,654	26,515	29,162	15.3
Johns Hopkins University (9)	192,994	217,295	253,113	270,770	272,956	298,873	324,830	341,805	363,635	421,147	410,923	438,725	464,237	517,302	580,307	636,774	15.3
Medical College of Wisconsin (115)	33,231	34,951	34,622	40,446	43,579	48,689	49,604	44,169	47,365	51,629	56,021	61,446	70,581	83,857	96,700	108,608	15.1
Case Western Reserve University (52)	77,303	86,168	93,384	104,199	118,391	124,691	133,272	141,089	143,435	161,825	176,330	182,332	193,057	198,253	219,042	250,674	15.0
University of California—San Diego (8)	200,472	216,991	237,032	261,422	282,114	307,051	331,901	357,333	371,509	376,655	418,790	461,632	518,559	556,533	585,008	646,508	14.8
Ohio State University (20)	154,652	173,485	178,569	194,919	203,291	221,460	230,515	246,287	262,147	289,100	301,518	322,810	361,399	390,652	432,387	496,438	14.7
South Dakota State University (197)	8,622	8,472	9,511	11,511	12,692	14,050	14,083	13,448	14,925	15,671	15,631	15,599	16,784	19,717	20,085	27,652	14.7
University of California—Santa Barbara (91)	46,598	50,067	59,750	59,593	66,007	68,775	73,619	78,737	91,284	91,149	96,034	104,561	118,154	116,372	131,795	149,130	14.7
Colorado State University (69)	59,369	64,351	73,967	80,474	107,339	115,385	112,457	122,172	126,701	128,580	140,179	150,281	152,279	161,144	178,845	187,054	14.3
Texas Tech University (121)	29,374	33,926	34,124	34,994	36,869	38,119	39,455	40,824	43,000	46,645	53,126	58,488	66,263	69,918	82,785	92,515	14.3
University of Delaware (110)	32,023	37,194	40,119	44,696	48,970	52,627	50,734	53,161	54,154	65,095	69,896	73,521	74,711	77,491	85,157	100,706	14.3
University of Michigan (1)	250,169	280,905	310,578	363,582	393,059	425,868	430,778	443,070	468,876	483,485	496,761	508,619	551,556	600,523	673,724	780,054	14.1
University of California—Davis (19)	154,655	180,297	198,075	200,664	209,282	223,758	230,147	244,116	254,604	267,341	288,796	307,950	364,789	432,396	456,653	482,145	14.1
Northwestern University (39)	102,755	118,991	133,151	144,809	141,975	162,299	169,949	173,731	187,262	200,943	223,235	233,809	245,774	257,933	282,154	319,722	14.1
Clemson University (90)	49,375	56,699	66,664	70,236	77,579	78,569	76,572	82,883	84,836	84,034	90,150	99,341	114,903	123,885	134,840	152,986	14.0
University of Missouri—Columbia (66)	66,365	74,055	88,181	96,748	97,242	106,193	121,256	122,870	119,079	128,178	136,061	149,002	158,861	174,782	177,011	205,212	13.9
Quartile 3	3,855,166	4,269,386	4,617,321	4,893,646	5,193,764	5,412,954	5,772,602	6,109,065	6,257,542	6,669,804	7,101,090	7,490,267	8,177,844	8,702,428	9,605,060	10,469,236	11.4
University of Iowa (43)	94,552	105,900	115,778	124,058	135,418	148,811	157,036	164,893	178,228	184,414	199,063	207,135	236,944	255,348	288,808	292,035	13.9
University of Nebraska—Lincoln (75)	60,788	68,281	77,598	87,529	91,427	94,959	102,746	107,721	102,460	117,100	118,857	131,046	136,023	157,520	171,431	184,652	13.6
University of Maryland Center for Environmental Science (164)	12,682	13,741	15,652	16,205	18,557	19,055	19,817	21,100	21,448	21,377	24,038	26,816	31,605	36,635	38,501	38,344	13.5
Brown University (107)	41,556	43,564	46,763	49,503	55,585	57,152	55,146	56,269	67,621	71,411	73,977	76,330	81,476	91,636	109,482	125,090	13.4
Florida State University (94)	50,679	55,245	62,933	53,811	50,178	62,929	76,588	86,060	78,125	95,908	94,463	97,673	105,095	113,817	134,351	152,277	13.4
University of Massachusetts (42)	106,043	121,886	113,103	132,060	141,127	151,090	156,385	156,883	170,524	191,243	208,685	205,981	232,791	251,013	293,039	317,387	13.3
University of Utah (62)	75,789	83,340	89,018	94,621	108,486	105,263	103,771	105,642	114,423	135,911	142,956	153,843	187,661	197,597	216,707	223,739	13.0
Virginia Commonwealth University (100)	42,951	52,193	62,730	65,608	69,189	77,097	76,597	76,529	79,018	78,948	80,538	79,785	88,220	99,180	109,619	126,451	13.0
City University of New York (124)	25,821	28,952	32,190	34,922	36,789	42,292	48,160	48,070	51,103	51,400	51,730	47,005	49,135	58,214	67,495	75,946	12.9
University of Wyoming (136)	20,429	23,310	22,831	23,009	30,181	32,556	38,464	40,470	40,553	47,753	48,500	47,197	43,094	41,632	41,632	60,054	12.9
University of Arkansas (111)	28,104	32,842	36,963	40,831	44,768	58,325	57,815	59,410	59,753	64,868	71,686	61,585	70,817	78,303	83,063	82,277	12.9
University of Arizona (18)	155,464	174,119	195,633	213,726	221,999	235,528	269,939	292,351	279,656	285,278	302,328	320,245	345,090	367,128	390,627	454,941	12.8
University of Vermont (113)	36,815	42,743	45,162	46,541	49,542	49,839	51,775	54,065	53,659	59,526	57,832	64,049	63,391	75,597	88,602	104,994	12.3
University of Idaho (116)	30,078	31,879	34,936	39,407	44,140	44,655	49,338	52,529	56,198	57,582	58,967	62,531	61,347	67,496	76,758	85,213	12.2
Pennsylvania State University (14)	188,444	219,930	256,926	267,816	278,305	282,659	302,997	330,881	337,938	339,955	362,643	379,402	427,575	458,066	492,739	533,427	12.2
University of Texas—Dallas (198)	10,936	11,265	12,075	10,571	12,995	13,371	14,492	14,027	13,562	14,561	15,211	16,028	15,684	15,684	26,198	30,748	12.1
San Jose State University (175)	10,104	9,488	10,086	12,100	18,326	21,005	21,005	21,005	21,005	21,005	21,005	21,005	21,005	22,709	25,003	28,323	12.0
Rockefeller University (82)	68,588	73,945	75,245	74,090	75,102	74,396	74,458	99,348	105,595	109,999	115,494	121,519	124,138	145,571	166,603	192,143	12.0
University of Hawaii—Manoa (76)	64,278	70,733	76,525	78,166	80,258	73,961	70,079	78,429	111,202	120,107	148,007	156,810	161,300	156,976	161,823	179,285	11.9

R&D expenditures and S&E article output of top 200 U.S. academic institutions for R&D, by quartile of R&D growth: 1988–2003

Quartile of R&D growth, academic institution, and rank of institution	Total R&D (\$ thousands)															Average annual change (%)	
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		2003
Rice University (140)	18,851	21,563	26,267	30,577	29,424	30,403	33,309	34,446	39,696	43,601	41,067	41,069	41,840	42,675	48,169	52,367	11.9
University of Virginia (67)	74,572	81,281	96,815	96,733	110,103	115,786	129,504	136,679	97,334	114,085	139,135	131,138	140,416	149,547	182,340	206,199	11.8
Michigan State University (41)	116,320	121,456	126,987	133,249	142,308	150,861	163,285	182,009	182,589	190,178	193,611	207,912	238,436	265,946	289,787	321,410	11.8
Tulane University (95)	42,619	45,195	56,407	71,781	72,190	75,634	83,885	100,231	83,660	86,427	87,858	87,324	89,785	99,761	102,998	117,709	11.7
University of Southern California (26)	150,009	162,013	169,102	175,595	194,740	200,822	207,275	222,159	244,258	259,246	268,806	280,741	300,445	340,597	372,397	414,099	11.7
Virginia Polytech Institute and State University (47)	89,955	104,266	121,423	125,256	130,994	135,771	148,313	148,501	143,815	169,808	167,118	169,250	192,672	216,323	232,560	247,807	11.7
Louisiana State University, all campuses (37) ...	114,698	122,357	135,849	147,626	151,844	158,823	165,857	186,723	196,328	205,441	208,928	225,808	251,233	268,911	287,363	314,665	11.6
State University of New York–Buffalo (54)	87,635	100,291	109,190	113,441	128,428	128,203	141,092	143,768	137,701	135,663	151,650	166,823	187,692	186,829	226,959	240,180	11.6
University of California–Berkeley (13)	186,372	209,967	231,061	258,038	284,545	284,346	289,632	291,200	316,320	377,376	420,426	451,539	518,514	446,273	474,746	507,186	11.5
Columbia University in the City of New York (23)	160,976	172,145	182,769	194,666	199,516	204,710	236,417	244,991	236,403	244,337	267,007	279,587	319,693	354,497	405,403	437,669	11.5
University of Wisconsin–Madison (2)	271,418	285,982	309,841	326,489	352,706	372,362	392,718	403,541	412,570	419,810	443,695	499,688	554,361	604,143	662,101	721,248	11.0
University of North Dakota (172)	15,806	17,518	17,498	16,995	18,265	19,204	18,732	18,940	28,188	20,899	16,938	16,999	17,343	19,692	33,973	41,803	11.0
Rutgers–the State University of New Jersey (40)	105,150	124,574	137,985	151,335	162,089	161,025	173,211	192,263	185,103	183,038	197,053	213,838	225,268	236,793	258,829	274,576	10.7
Kansas State University (104)	43,174	47,302	50,311	53,010	57,723	62,562	65,696	71,103	71,222	76,896	81,233	85,580	91,790	94,030	106,804	112,733	10.7
Southern Illinois University–Carbondale (146) ...	20,310	23,357	25,873	28,340	28,094	26,376	30,497	29,631	28,578	30,043	30,490	33,169	36,354	43,207	53,604	53,018	10.7
Purdue University (38)	118,797	124,323	130,379	136,325	140,260	149,032	172,733	203,419	206,951	206,588	216,479	226,411	234,536	254,917	285,778	309,476	10.7
California Institute of Technology (46)	92,530	98,731	105,730	115,526	111,733	115,439	127,946	138,016	157,005	177,888	185,066	212,216	222,666	215,085	220,004	240,664	10.7
North Carolina State University (35)	110,286	123,441	131,133	142,606	143,008	155,624	173,407	180,191	190,748	229,292	254,254	270,621	277,946	299,259	290,018	286,025	10.6
State University of New York–Binghamton (191)	8,926	9,270	10,680	9,870	12,843	13,760	15,803	17,106	18,500	19,310	20,754	17,998	18,661	18,992	21,343	23,090	10.6
University of Alaska–Fairbanks (99)	49,856	56,701	65,571	67,432	67,881	66,796	76,093	72,216	71,381	70,943	75,606	88,825	102,500	110,195	116,279	128,916	10.6
University of North Texas (186)	11,499	12,751	12,508	14,084	14,621	14,744	15,585	15,997	17,749	17,936	17,734	17,176	19,239	25,259	26,120	29,378	10.4
Georgia Institute of Technology(28)	143,051	174,664	168,193	176,729	180,263	175,873	193,630	211,875	225,633	240,237	259,233	263,725	304,511	306,533	340,347	364,190	10.3
State University of New York–Stony Brook (65)	79,410	79,455	82,236	90,790	98,906	107,817	113,251	122,611	126,377	136,624	141,766	148,982	163,307	168,487	184,045	200,330	10.2
University of Miami (63)	70,783	90,298	94,344	96,979	104,165	120,875	121,475	128,736	130,056	135,888	136,972	139,608	145,795	153,772	171,319	177,709	10.1
University of Chicago (55)	98,541	109,429	117,955	113,289	118,123	111,877	121,902	126,261	135,693	150,531	151,635	162,805	170,678	194,125	225,264	247,322	10.1
University of Rochester (45)	114,061	123,997	129,011	131,777	139,992	161,810	167,485	158,539	144,914	155,311	174,617	177,126	197,335	234,261	261,601	285,768	10.0
University of Alabama Huntsville (141)	18,628	26,186	29,565	28,897	32,017	34,153	31,482	36,736	38,176	32,817	36,946	40,203	41,274	43,731	48,353	46,595	10.0
University of Illinois at Urbana-Champaign (16)	197,393	210,590	225,634	243,380	251,970	252,811	245,407	246,174	268,995	286,470	329,266	358,247	373,024	390,863	427,174	493,581	10.0
University of Oregon (145)	18,567	22,476	26,346	26,151	30,242	30,738	31,170	30,386	33,654	31,487	33,315	32,695	35,934	36,881	43,723	44,604	9.3
New York University (51)	100,872	104,451	108,511	112,106	122,399	129,774	139,202	148,935	145,874	153,288	156,452	167,179	182,205	190,722	222,978	241,593	9.3
Quartile 4	3,612,168	3,889,003	4,184,568	4,480,338	4,651,891	4,828,371	4,938,381	5,097,429	5,244,665	5,401,294	5,504,002	5,750,523	6,070,860	6,439,318	7,008,520	7,498,686	7.2
Yale University (24)	162,188	171,139	180,706	193,893	211,569	226,850	224,939	231,819	234,901	245,536	262,680	274,050	296,706	321,514	354,243	387,644	9.3
University of Maryland–College Park (29)	135,531	149,510	166,022	206,432	219,041	229,344	198,348	209,945	216,957	215,927	223,190	257,628	252,429	267,383	324,980	321,899	9.2
University of Houston (123)	26,803	34,229	37,978	42,292	44,957	55,038	43,131	44,993	49,178	45,916	42,297	43,370	48,902	51,567	59,707	63,455	9.1
Auburn University (92)	52,737	53,814	66,795	69,913	66,773	68,151	84,769	85,566	87,358	85,460	87,768	80,544	92,612	106,347	108,775	124,103	9.0
Yeshiva University (78)	75,383	74,496	83,968	86,721	87,196	89,636	92,881	94,739	91,430	96,819	99,000	111,771	139,618	148,230	157,124	177,236	9.0
Texas A&M University (5)	236,847	259,151	280,849	296,944	317,292	336,735	373,697	381,040	389,861	390,288	420,214	427,945	454,539	483,106	527,488	556,514	9.0

Quartile of R&D growth, academic institution, and rank of institution	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average annual change (%)
Utah State University (87).....	59,273	69,944	86,450	94,167	89,776	75,835	79,085	82,468	81,709	91,292	94,228	95,364	103,161	121,359	121,621	138,862	9.0
Princeton University (72).....	76,891	82,914	91,514	92,002	93,958	95,561	99,287	104,157	112,380	114,549	115,996	124,237	134,875	149,411	164,408	179,951	8.9
Iowa State University (49).....	86,726	103,241	116,270	134,657	132,580	148,459	155,982	154,932	151,914	155,433	156,766	161,301	175,558	179,196	188,664	199,566	8.7
Georgetown University (86).....	44,783	53,597	50,867	60,454	64,937	73,785	82,661	102,421	112,582	119,114	116,611	111,426	133,211	99,228	96,450	100,181	8.2
Howard University (161).....	16,870	17,125	17,382	15,731	17,576	18,427	19,836	24,819	28,894	27,873	23,673	23,557	27,254	30,148	35,387	37,577	8.2
New York Medical College (177).....	13,817	12,958	13,244	14,633	16,799	18,491	18,725	18,424	16,372	16,890	19,159	20,436	23,348	24,283	25,222	30,492	8.0
University of Wisconsin–Milwaukee (174).....	12,424	13,428	15,639	16,865	18,567	18,245	19,180	19,684	19,679	19,995	20,807	21,325	20,010	23,492	24,933	27,259	8.0
University of Georgia (33).....	137,692	145,953	156,742	162,992	165,279	172,274	187,849	206,256	209,357	225,457	217,945	237,493	258,476	272,298	284,660	299,748	7.8
Stanford University (6).....	277,504	285,994	299,511	314,941	367,980	306,676	318,561	318,871	351,526	395,310	410,309	426,549	457,822	482,906	538,474	603,227	7.8
University of Alabama (157).....	15,836	18,395	21,488	21,248	22,573	23,149	21,960	23,479	21,806	23,671	23,935	28,909	31,847	33,133	37,130	34,187	7.7
University of Minnesota (11).....	236,115	258,614	292,046	331,471	317,026	332,033	317,865	336,524	341,179	363,095	360,323	371,384	411,380	462,011	494,265	508,557	7.7
Harvard University (17).....	190,429	209,519	220,812	229,939	253,126	257,207	278,459	276,422	282,443	299,961	306,100	326,193	341,810	372,107	401,367	408,707	7.6
Desert Research Institute (167).....	14,798	16,005	16,852	17,948	20,579	21,187	21,459	22,851	20,100	20,000	21,500	23,376	25,691	29,697	29,465	31,757	7.6
University of Connecticut (56).....	89,630	109,328	117,932	123,794	124,010	133,054	136,740	139,956	147,522	140,840	134,448	134,986	161,084	164,366	172,003	190,341	7.5
University of California–Riverside (105).....	52,983	53,213	54,892	57,244	57,536	59,065	60,995	62,539	71,495	75,486	79,775	75,821	83,580	94,455	111,936	112,468	7.5
Michigan Technological University (163).....	14,321	15,186	16,037	19,667	18,179	18,696	21,786	22,798	23,882	24,140	26,522	28,074	27,204	29,613	30,005	30,264	7.4
State University of New York Health Sciences Center–Brooklyn (152).....	18,374	20,523	22,873	32,824	24,171	27,645	27,773	30,781	30,254	29,727	27,517	28,840	31,626	31,626	34,981	38,424	7.3
University of Tennessee System (50).....	104,179	113,187	116,644	128,418	131,240	143,662	153,340	151,316	149,331	154,230	150,694	158,930	163,690	161,898	188,261	217,389	7.2
Tufts University (98).....	54,225	50,424	47,009	47,748	60,891	68,519	73,749	77,093	79,356	83,568	92,130	100,872	105,783	105,806	109,291	112,609	7.2
State University of New York College of Environmental Science and Forestry (165).....	12,917	17,221	18,671	19,049	18,456	21,856	21,839	21,904	21,969	20,540	22,036	25,385	26,663	27,854	26,337	26,783	7.2
Brigham Young University (195).....	10,967	11,544	11,608	12,682	14,469	13,587	13,859	14,102	11,791	11,502	11,963	23,985	17,237	19,171	21,228	22,557	7.0
Cornell University (10).....	271,659	286,733	300,144	309,535	299,342	310,949	312,683	343,786	339,534	351,030	363,511	395,552	410,393	443,828	496,123	554,760	6.9
Clark Atlanta University (181).....	6,378	7,137	7,896	8,655	11,483	12,057	12,709	25,245	34,566	28,893	29,637	19,467	16,891	17,173	17,194	12,760	6.7
University of Texas–Austin (21).....	172,608	193,337	228,203	237,043	228,545	249,158	260,602	228,676	241,606	239,021	244,843	258,122	272,811	295,104	320,966	343,854	6.6
Carnegie Mellon University (60).....	94,051	101,635	100,201	103,030	110,571	118,261	122,580	125,659	136,514	134,954	137,450	142,174	137,980	144,882	188,191	186,351	6.5
University of Texas–Arlington (188).....	7,670	7,064	5,729	12,887	13,896	14,834	17,453	21,135	24,010	37,509	19,075	11,450	10,723	17,486	15,097	15,102	6.5
Florida A&M University (169).....	12,079	14,171	15,847	18,552	22,230	22,777	24,691	20,797	22,474	25,415	19,066	21,622	21,612	23,865	31,147	23,503	6.3
Uniformed Services University of the Health Sciences (156).....	15,991	18,962	21,933	24,904	27,875	30,846	27,334	39,612	36,851	18,812	20,309	22,898	23,987	23,247	28,630	30,604	6.1
University of Missouri–Rolla (170).....	18,823	17,692	14,285	14,432	15,619	18,025	19,706	21,220	20,235	20,895	21,740	25,893	25,968	28,799	32,222	35,999	6.1
Brandeis University (132).....	26,618	30,596	30,881	33,837	35,229	36,213	34,835	36,451	36,760	40,145	44,589	48,305	47,658	52,818	47,122	50,841	6.1
Oregon State University (64).....	88,953	91,355	90,688	96,199	107,573	114,004	119,772	123,402	131,334	131,467	138,240	139,285	140,751	153,925	161,735	167,631	5.9
New Mexico Institute of Mining and Technology (158).....	20,357	22,289	22,911	24,059	25,208	24,040	20,945	19,584	20,580	21,974	22,791	26,061	23,636	28,392	36,309	37,186	5.5
Massachusetts Institute of Technology (4).....	270,584	287,157	311,767	323,535	333,908	377,413	374,768	370,800	380,612	410,930	413,098	420,306	426,299	435,495	446,786	485,764	5.3
New Mexico State University (93).....	61,001	60,930	71,288	78,736	83,900	85,974	80,286	81,455	76,493	81,024	77,370	79,877	79,695	86,963	103,078	108,613	5.2
Oklahoma State University (101).....	57,914	54,788	67,620	67,492	71,238	72,920	70,808	75,906	82,960	62,480	71,466	83,108	88,285	90,311	94,987	103,079	5.2
Temple University (114).....	40,941	45,482	49,449	54,921	53,921	53,686	56,308	54,742	56,533	54,500	63,024	53,940	52,466	60,182	63,850	71,327	4.9
University of Rhode Island (128).....	35,940	36,219	35,846	38,842	40,842	45,942	46,631	43,103	39,575	40,522	37,940	44,452	48,135	50,835	53,347	61,818	4.8
University of Dayton (130).....	31,483	31,984	36,177	37,925	41,009	45,052	47,768	46,084	43,188	45,437	45,000	36,937	39,345	41,343	46,554	52,943	4.5
Syracuse University (137).....	33,643	35,543	33,811	30,606	32,145	32,443	38,650	33,939	34,322	34,642	37,322	39,640	40,063	42,476	45,870	48,846	3.0
Rensselaer Polytechnic Institute (129).....	36,511	38,805	46,880	50,106	50,769	44,132	37,191	37,247	37,917	38,803	38,560	39,034	40,762	45,010	45,955	50,777	2.6
Lehigh University (147).....	27,089	26,004	27,255	27,912	31,822	30,869	29,188	35,117	34,780	26,451	26,115	27,902	25,506	29,058	22,687	29,211	0.5

R&D expenditures and S&E article output of top 200 U.S. academic institutions for R&D, by quartile of R&D growth: 1988–2003

Quartile of R&D growth, academic institution, and rank of institution	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average annual change (%)
Total R&D (\$ thousands)																	
State University of New York Upstate Medical University (185)	24,541	31,125	14,401	14,564	12,992	12,453	11,751	13,177	14,093	14,914	14,089	15,099	17,095	17,294	22,326	25,931	0.4
University of Puerto Rico–Mayaguez (139).....	27,091	29,343	30,555	27,897	25,238	23,156	22,967	40,393	44,502	48,857	51,181	55,648	34,683	18,627	19,939	20,029	-1.7
Institutions not assigned to quartiles																	
Eastern Kentucky University (193)	na	na	na	na	na	457	6,498	12,539	18,580	24,621	30,662	36,708	640	770	666	506	na
Florida International University (162)	na	na	na	na	na	11,443	13,520	16,375	16,856	17,359	17,880	25,061	34,649	44,291	47,654	52,175	na
MCP Hahnemann University (120)	23,828	31,700	32,238	37,814	44,038	42,752	45,218	41,237	48,790	85,748	95,984	27,516	41,670	32,462	37,945	na	na
University of Maryland Biotechnology Institute (154)	na	na	na	na	na	na	14,839	18,062	22,933	29,117	31,861	31,172	29,946	32,458	34,440	39,789	na
Number of articles																	
Total S&E article output.....	116,656	123,115	126,037	127,393	131,304	129,894	131,929	133,972	134,284	131,851	132,485	132,733	131,757	135,247	132,307	143,298	1.5
Quartile 1	20,043	21,677	22,452	22,996	23,844	23,868	24,135	25,013	25,195	24,884	25,056	25,153	24,848	25,784	25,173	27,462	2.5
Quartile 2	33,659	35,431	36,306	36,754	38,055	38,017	38,747	39,650	39,869	39,180	39,881	39,957	39,792	41,365	40,322	43,917	2.0
Quartile 3	34,677	36,020	36,957	37,005	38,021	37,268	37,505	37,457	37,736	36,691	36,860	36,807	36,815	37,070	36,717	39,449	0.9
Quartile 4	28,277	29,987	30,322	30,639	31,384	30,741	31,542	31,853	31,483	31,096	30,689	30,817	30,302	31,028	30,095	32,470	1.0

na = not applicable

NOTES: Top 200 R&D universities assigned to quartile based on total R&D growth between 1988 and 2003. Articles on fractional-count basis, i.e., for articles with collaborating top-200 institutions or non-top-200 institutions, credit is fractionally apportioned on basis of proportion of institutions from each top-200 institution.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation>; iplQ, Inc., and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-57

(Page 1 of 2)

Cross-sectoral coauthorship of S&E articles, by field and sector: 1988

(Number of articles)

Field and sector	All sectors	Academic	Industry	Federal government	Nonprofit institutions	FFRDCs	State/local government
All fields							
All sectors	30,370	na	na	na	na	na	na
Academic	28,062	na	6,286	10,616	10,506	2,812	2,218
Industry	7,228	6,286	na	1,325	862	475	179
Federal government	11,175	10,616	1,325	na	1,263	385	398
Nonprofit institutions	10,653	10,506	862	1,263	na	134	435
FFRDCs	2,813	2,812	475	385	134	na	10
State/local government	2,429	2,218	179	398	435	10	na
Clinical medicine							
All sectors	14,326	na	na	na	na	na	na
Academic	13,556	na	1,637	5,492	6,878	148	1,440
Industry	1,894	1,637	na	392	454	27	88
Federal government	5,580	5,492	392	na	784	69	253
Nonprofit institutions	6,923	6,878	454	784	na	26	334
FFRDCs	191	148	27	69	26	na	4
State/local government	1,554	1,440	88	253	334	4	na
Biomedical research							
All sectors	4,478	na	na	na	na	na	na
Academic	4,142	na	913	1,707	1,921	233	243
Industry	1,028	913	na	201	190	45	22
Federal government	1,759	1,707	201	na	240	72	39
Nonprofit institutions	1,872	1,921	190	240	na	31	52
FFRDCs	265	233	45	72	31	na	1
State/local government	244	243	22	39	52	1	na
Biology							
All sectors	1,569	na	na	na	na	na	na
Academic	1,469	na	257	927	260	64	138
Industry	285	257	na	74	13	6	12
Federal government	948	927	74	na	40	9	44
Nonprofit institutions	261	260	13	40	na	1	7
FFRDCs	66	64	6	9	1	na	1
State/local government	161	138	12	44	7	1	na
Chemistry							
All sectors	1,123	na	na	na	na	na	na
Academic	1,002	na	514	280	71	267	12
Industry	573	514	na	87	22	40	1
Federal government	332	280	87	na	14	15	3
Nonprofit institutions	93	71	22	14	na	3	1
FFRDCs	268	267	40	15	3	na	0
State/local government	12	12	1	3	1	0	na
Physics							
All sectors	2,752	na	na	na	na	na	na
Academic	2,455	na	1,078	548	103	1,362	3
Industry	1,224	1,078	na	176	20	223	1
Federal government	643	548	176	na	22	93	1
Nonprofit institutions	117	103	20	22	na	13	0
FFRDCs	1,227	1,362	223	93	13	na	1
State/local government	4	3	1	1	0	1	na
Earth/space sciences							
All sectors	1,634	na	na	na	na	na	na
Academic	1,381	na	373	690	234	382	77
Industry	485	373	na	202	34	42	23
Federal government	780	690	202	na	74	100	17
Nonprofit institutions	246	234	34	74	na	41	6
FFRDCs	381	382	42	100	41	na	3
State/local government	99	77	23	17	6	3	na

Appendix table 5-57

(Page 2 of 2)

Cross-sectoral coauthorship of S&E articles, by field and sector: 1988

(Number of articles)

Field and sector	All sectors	Academic	Industry	Federal government	Nonprofit institutions	FFRDCs	State/local government
Engineering/technology							
All sectors	1,667	na	na	na	na	na	na
Academic	1,428	na	862	335	108	283	21
Industry	1,012	862	na	139	60	85	10
Federal government	439	335	139	na	16	22	2
Nonprofit institutions	146	108	60	16	na	16	1
FFRDCs	341	283	85	22	16	na	0
State/local government	29	21	10	2	1	0	na
Mathematics							
All sectors	198	na	na	na	na	na	na
Academic	187	na	90	55	23	42	3
Industry	91	90	na	5	9	4	0
Federal government	55	55	5	na	2	1	1
Nonprofit institutions	26	23	9	2	na	1	0
FFRDCs	40	42	4	1	1	na	0
State/local government	3	3	0	1	0	0	na
Psychology							
All sectors	834	na	na	na	na	na	na
Academic	798	na	119	215	302	3	107
Industry	134	119	na	11	12	0	5
Federal government	216	215	11	na	11	0	9
Nonprofit institutions	305	302	12	11	na	0	12
FFRDCs	3	3	0	0	0	na	0
State/local government	113	107	5	9	12	0	na
Social sciences							
All sectors	645	na	na	na	na	na	na
Academic	605	na	127	178	258	20	36
Industry	142	127	na	16	14	1	4
Federal government	195	178	16	na	23	3	6
Nonprofit institutions	266	258	14	23	na	2	3
FFRDCs	21	20	1	3	2	na	0
State/local government	42	36	4	6	3	0	na
Health sciences							
All sectors	552	na	na	na	na	na	na
Academic	491	na	69	116	221	2	82
Industry	88	69	na	8	24	0	8
Federal government	145	116	8	na	29	0	22
Nonprofit institutions	252	221	24	29	na	0	18
FFRDCs	2	2	0	0	0	na	0
State and local government	104	82	8	22	18	0	na
Professional fields							
All sectors	592	na	na	na	na	na	na
Academic	548	na	247	73	127	6	56
Industry	272	247	na	14	10	2	5
Federal government	83	73	14	na	8	1	1
Nonprofit institutions	146	127	10	8	na	0	1
FFRDCs	8	6	2	1	0	na	0
State/local government	64	56	5	1	1	0	na

na = not applicable

FFRDC = federally funded research and development center

NOTES: Articles on whole-count basis, i.e., for articles with collaborating institutions from multiple sectors, each sector receives one count for participation by its institution(s). Sum of sector counts exceeds total because multiple sectors are credited one count for collaboration on an article.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-58

(Page 1 of 2)

Cross-sectoral coauthorship of S&E articles, by field and sector: 2003

(Number of articles)

Field and sector	All sectors	Academic	Industry	Federal government	Nonprofit institutions	FFRDCs	State/local government
All fields							
All sectors	41,072	na	na	na	na	na	na
Academic	38,082	na	12,114	15,482	17,671	5,698	2,802
Industry	11,607	12,114	na	2,400	2,524	868	388
Federal government	13,913	15,482	2,400	na	2,703	914	728
Nonprofit institutions	15,437	17,671	2,524	2,703	na	375	743
FFRDCs	4,240	5,698	868	914	375	na	23
State/local government	2,876	2,802	388	728	743	23	na
Clinical medicine							
All sectors	17,549	na	na	na	na	na	na
Academic	16,398	na	4,511	6,345	10,571	239	1,423
Industry	4,181	4,511	na	833	1,758	54	193
Federal government	5,717	6,345	833	na	1,576	103	371
Nonprofit institutions	9,435	10,571	1,758	1,576	na	65	519
FFRDCs	252	239	54	103	65	na	6
State/local government	1,442	1,423	193	371	519	6	na
Biomedical research							
All sectors	6,128	na	na	na	na	na	na
Academic	5,786	na	1,617	2,576	3,392	567	313
Industry	1,428	1,617	na	266	386	81	32
Federal government	2,119	2,576	266	na	436	103	80
Nonprofit institutions	2,731	3,392	386	436	na	86	72
FFRDCs	487	567	81	103	86	na	9
State/local government	284	313	32	80	72	9	na
Biology							
All sectors	2,649	na	na	na	na	na	na
Academic	2,451	na	518	1,584	606	88	337
Industry	541	518	na	142	40	14	32
Federal government	1,469	1,584	142	na	116	26	129
Nonprofit institutions	532	606	40	116	na	8	35
FFRDCs	85	88	14	26	8	na	2
State/local government	361	337	32	129	35	2	na
Chemistry							
All sectors	1,723	na	na	na	na	na	na
Academic	1,583	na	778	427	190	608	20
Industry	768	778	na	112	26	69	5
Federal government	432	427	112	na	20	58	3
Nonprofit institutions	185	190	26	20	na	11	3
FFRDCs	535	608	69	58	11	na	0
State/local government	21	20	5	3	3	0	na
Physics							
All sectors	3,053	na	na	na	na	na	na
Academic	2,754	na	1,229	854	177	2,320	5
Industry	1,205	1,229	na	280	31	306	2
Federal government	805	854	280	na	28	170	0
Nonprofit institutions	139	177	31	28	na	26	1
FFRDCs	1,412	2,320	306	170	26	na	0
State/local government	3	5	2	0	1	0	na
Earth/space sciences							
All sectors	3,119	na	na	na	na	na	na
Academic	2,797	na	710	1,959	807	1,216	183
Industry	705	710	na	388	69	130	34
Federal government	1,558	1,959	388	na	262	383	37
Nonprofit institutions	539	807	69	262	na	161	12
FFRDCs	819	1,216	130	383	161	na	5
State/local government	185	183	34	37	12	5	na

Appendix table 5-58

(Page 2 of 2)

Cross-sectoral coauthorship of S&E articles, by field and sector: 2003

(Number of articles)

Field and sector	All sectors	Academic	Industry	Federal government	Nonprofit institutions	FFRDCs	State/local government
Engineering/technology							
All sectors	2,997	na	na	na	na	na	na
Academic	2,689	na	1,888	695	125	597	94
Industry	1,876	1,888	na	280	50	205	45
Federal government	773	695	280	na	39	68	7
Nonprofit institutions	144	125	50	39	na	14	6
FFRDCs	594	597	205	68	14	na	0
State/local government	119	94	45	7	6	0	na
Mathematics							
All sectors	190	na	na	na	na	na	na
Academic	185	na	105	35	36	41	3
Industry	92	105	na	3	5	5	0
Federal government	33	35	3	na	0	1	0
Nonprofit institutions	34	36	5	0	na	1	0
FFRDCs	33	41	5	1	1	na	0
State/local government	3	3	0	0	0	0	na
Psychology							
All sectors	988	na	na	na	na	na	na
Academic	952	na	166	311	475	3	115
Industry	175	166	na	23	28	0	6
Federal government	286	311	23	na	37	0	11
Nonprofit institutions	446	475	28	37	na	0	18
FFRDCs	3	3	0	0	0	na	1
State/local government	111	115	6	11	18	1	na
Social sciences							
All sectors	749	na	na	na	na	na	na
Academic	708	na	115	209	439	9	50
Industry	129	115	na	13	21	2	4
Federal government	209	209	13	na	39	2	12
Nonprofit institutions	390	439	21	39	na	2	3
FFRDCs	10	9	2	2	2	na	0
State/local government	53	50	4	12	3	0	na
Health sciences							
All sectors	1,315	na	na	na	na	na	na
Academic	1,216	na	248	388	666	1	185
Industry	266	248	na	41	90	0	23
Federal government	400	388	41	na	134	0	60
Nonprofit institutions	667	666	90	134	na	0	62
FFRDCs	1	1	0	0	0	na	0
State and local government	212	185	23	60	62	0	na
Professional fields							
All sectors	612	na	na	na	na	na	na
Academic	563	na	229	99	187	9	74
Industry	241	229	na	19	20	2	12
Federal government	112	99	19	na	16	0	18
Nonprofit institutions	195	187	20	16	na	1	12
FFRDCs	9	9	2	0	1	na	0
State/local government	82	74	12	18	12	0	na

na = not applicable

FFRDC = federally funded research and development center

NOTES: Articles on whole-count basis, i.e., for articles with collaborating institutions from multiple sectors, each sector receives one count for participation by its institution(s). Sum of sector counts exceeds total because multiple sectors are credited one count for collaboration on an article.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-59

(Page 1 of 2)

Coauthorship of S&E articles, by field and sector: 1988

Field and sector	All articles	Coauthored articles		
		Total	U.S. coauthored	Internationally coauthored
All fields				
All sectors	187,245	88,946	69,649	19,297
Academic	148,642	77,562	62,526	15,036
Industry.....	20,221	10,163	8,505	1,658
Federal government.....	22,044	14,889	12,700	2,189
Nonprofit institutions	19,473	13,944	12,179	1,765
FFRDCs	7,171	4,287	3,115	1,172
State/local government.....	3,670	2,783	2,586	197
Clinical medicine				
All sectors	57,388	34,925	30,117	4,808
Academic	46,385	30,407	26,828	3,579
Industry.....	3,890	2,570	2,196	374
Federal government	9,033	7,209	6,351	858
Nonprofit institutions	11,770	9,044	8,222	822
FFRDCs	367	262	219	43
State/local government	2,103	1,775	1,662	113
Biomedical research				
All sectors	29,201	15,094	11,523	3,571
Academic	23,938	13,336	10,569	2,767
Industry.....	2,306	1,429	1,166	263
Federal government	3,777	2,570	2,051	519
Nonprofit institutions	3,480	2,480	2,009	471
FFRDCs	627	380	298	82
State/local government	442	302	262	40
Biology				
All sectors	13,523	5,499	4,158	1,341
Academic	11,153	4,938	3,847	1,091
Industry.....	565	344	304	40
Federal government	2,434	1,296	1,111	185
Nonprofit institutions	651	393	272	121
FFRDCs	145	76	71	5
State/local government	286	192	174	18
Chemistry				
All sectors	13,898	4,339	2,933	1,406
Academic	10,433	3,702	2,581	1,121
Industry.....	2,690	883	713	170
Federal government	987	472	376	96
Nonprofit institutions	278	128	96	32
FFRDCs	702	396	308	88
State/local government	47	19	16	3
Physics				
All sectors	19,685	8,938	5,681	3,257
Academic	13,914	7,437	4,999	2,438
Industry.....	4,129	1,866	1,448	418
Federal government	1,439	847	691	156
Nonprofit institutions	252	158	118	40
FFRDCs	3,302	2,015	1,338	677
State/local government	8	4	4	0
Earth/space sciences				
All sectors	8,784	4,357	2,887	1,470
Academic	6,469	3,564	2,473	1,091
Industry.....	883	615	521	94
Federal government	1,770	1,113	872	241
Nonprofit institutions	575	384	253	131
FFRDCs	845	567	403	164
State/local government	179	110	102	8

Appendix table 5-59

(Page 2 of 2)

Coauthorship of S&E articles, by field and sector: 1988

Field and sector	All articles	Coauthored articles		
		Total	U.S. coauthored	Internationally coauthored
Engineering/technology				
All sectors	12,430	4,553	3,308	1,245
Academic	7,990	3,542	2,618	924
Industry	3,753	1,581	1,347	234
Federal government	1,034	548	484	64
Nonprofit institutions	352	192	156	36
FFRDCs	1,029	502	401	101
State/local government	53	34	29	5
Mathematics				
All sectors	4,302	1,710	871	839
Academic	4,025	1,648	849	799
Industry	229	131	99	32
Federal government	126	67	56	11
Nonprofit institutions	56	35	26	9
FFRDCs	79	50	42	8
State/local government	4	3	3	0
Psychology				
All sectors	7,342	2,763	2,410	353
Academic	6,807	2,678	2,347	331
Industry	234	150	138	12
Federal government	338	237	222	15
Nonprofit institutions	473	333	313	20
FFRDCs	3	3	3	0
State/local government	161	121	116	5
Social sciences				
All sectors	9,043	2,758	2,143	615
Academic	7,853	2,583	2,046	537
Industry	359	155	148	7
Federal government	560	248	220	28
Nonprofit institutions	724	349	288	61
FFRDCs	51	26	22	4
State/local government	79	45	44	1
Health sciences				
All sectors	2,979	1,287	1,183	104
Academic	2,392	1,159	1,072	87
Industry	153	94	93	1
Federal government	270	175	168	7
Nonprofit institutions	496	282	266	16
FFRDCs	4	2	2	0
State and local government	150	112	108	4
Professional fields				
All sectors	8,670	2,723	2,435	288
Academic	7,283	2,568	2,297	271
Industry	1,030	345	332	13
Federal government	276	107	98	9
Nonprofit institutions	366	166	160	6
FFRDCs	17	8	8	0
State/local government	158	66	66	0

FFRDC = federally funded research and development center

NOTES: Articles on whole-count basis, i.e., for articles with collaborating institutions from more than one country/economy, each country/economy with at least one participating institution is credited one count. Internationally coauthored articles have at least one collaborating U.S. and foreign institution.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-60

(Page 1 of 2)

Coauthorship of S&E articles, by field and sector: 2003

Field and sector	All articles	Coauthored articles		
		Total	U.S. coauthored	Internationally coauthored
All fields				
All sectors	242,431	155,723	95,535	60,188
Academic	200,727	134,182	86,379	47,803
Industry.....	25,584	19,292	13,136	6,156
Federal government.....	27,020	22,053	15,458	6,595
Nonprofit institutions	29,957	24,694	18,007	6,687
FFRDCs	10,975	8,675	4,615	4,060
State/local government.....	4,112	3,519	2,997	522
Clinical medicine				
All sectors	74,254	53,468	37,302	16,166
Academic	60,019	45,278	33,043	12,235
Industry.....	8,238	6,924	4,627	2,297
Federal government	9,789	8,564	6,348	2,216
Nonprofit institutions	17,879	14,855	11,385	3,470
FFRDCs	432	379	266	113
State/local government	1,962	1,739	1,495	244
Biomedical research				
All sectors	39,855	27,656	17,007	10,649
Academic	33,585	24,233	15,697	8,536
Industry.....	3,414	2,518	1,639	879
Federal government	4,663	3,795	2,425	1,370
Nonprofit institutions	5,540	4,708	3,115	1,593
FFRDCs	976	840	538	302
State/local government	487	418	299	119
Biology				
All sectors	15,812	9,780	5,966	3,814
Academic	13,184	8,562	5,494	3,068
Industry.....	926	767	577	190
Federal government	3,153	2,275	1,656	619
Nonprofit institutions	1,160	918	558	360
FFRDCs	149	130	88	42
State/local government	544	459	382	77
Chemistry				
All sectors	17,808	9,041	5,133	3,908
Academic	14,260	7,517	4,418	3,099
Industry.....	2,887	1,669	1,097	572
Federal government	1,055	720	512	208
Nonprofit institutions	465	354	274	80
FFRDCs	1,221	910	610	300
State/local government	40	28	22	6
Physics				
All sectors	23,585	15,511	6,395	9,116
Academic	18,806	13,061	5,720	7,341
Industry.....	2,940	2,148	1,393	755
Federal government	1,802	1,396	857	539
Nonprofit institutions	319	261	143	118
FFRDCs	4,605	3,578	1,542	2,036
State/local government	6	6	3	3
Earth/space sciences				
All sectors	15,762	11,514	5,338	6,176
Academic	12,675	9,581	4,785	4,796
Industry.....	1,253	1,093	730	363
Federal government	3,246	2,825	1,701	1,124
Nonprofit institutions	1,324	1,170	555	615
FFRDCs	1,978	1,680	852	828
State/local government	280	235	198	37

Appendix table 5-60
Coauthorship of S&E articles, by field and sector: 2003

(Page 2 of 2)

Field and sector	All articles	Coauthored articles		
		Total	U.S. coauthored	Internationally coauthored
Engineering/technology				
All sectors	17,121	9,950	5,420	4,530
Academic	13,091	8,098	4,733	3,365
Industry	4,256	3,026	2,114	912
Federal government	1,476	1,124	840	284
Nonprofit institutions	269	208	149	59
FFRDCs	1,502	1,073	659	414
State/local government	163	128	123	5
Mathematics				
All sectors	4,651	2,726	982	1,744
Academic	4,474	2,639	957	1,682
Industry	188	144	97	47
Federal government	73	56	43	13
Nonprofit institutions	56	48	35	13
FFRDCs	71	57	37	20
State/local government	3	3	3	0
Psychology				
All sectors	8,472	4,633	3,485	1,148
Academic	8,022	4,476	3,417	1,059
Industry	247	206	179	27
Federal government	443	365	295	70
Nonprofit institutions	654	538	461	77
FFRDCs	3	3	3	0
State/local government	138	125	114	11
Social sciences				
All sectors	10,510	4,289	2,823	1,466
Academic	9,581	4,022	2,734	1,288
Industry	227	162	133	29
Federal government	487	286	230	56
Nonprofit institutions	905	595	410	185
FFRDCs	24	13	10	3
State/local government	76	57	54	3
Health sciences				
All sectors	5,415	3,225	2,637	588
Academic	4,645	2,938	2,444	494
Industry	400	325	275	50
Federal government	596	502	429	73
Nonprofit institutions	1,033	809	717	92
FFRDCs	2	1	1	0
State and local government	268	228	216	12
Professional fields				
All sectors	9,186	3,930	3,047	883
Academic	8,385	3,777	2,937	840
Industry	608	310	275	35
Federal government	237	145	122	23
Nonprofit institutions	353	230	205	25
FFRDCs	12	11	9	2
State/local government	145	93	88	5

FFRDC = federally funded research and development center

NOTES: Articles on whole-count basis, i.e., for articles with collaborating institutions from more than one country/economy, each country/economy with at least one participating institution is credited one count. Internationally coauthored articles have at least one collaborating U.S. and foreign institution.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-61

(Page 1 of 2)

Citation of S&E articles, by region and country/economy: 1992, 1997, and 2003

Region and country/economy	1992		1997		2003	
	Number	World share (%)	Number	World share (%)	Number	World share (%)
All countries.....	2,684,777	100.00	3,430,965	100.00	4,339,511	100.00
Major S&E article producers.....	2,336,128	87.01	2,974,868	86.71	3,714,578	85.60
United States.....	1,389,314	51.75	1,648,899	48.06	1,839,481	42.39
EU-15.....	754,230	28.09	1,056,629	30.80	1,412,427	32.55
Austria.....	11,023	0.41	17,684	0.52	27,950	0.64
Belgium.....	20,776	0.77	29,387	0.86	38,971	0.90
Denmark.....	20,271	0.76	27,173	0.79	37,971	0.88
Finland.....	14,704	0.55	23,869	0.70	34,503	0.80
France.....	116,453	4.34	161,199	4.70	201,941	4.65
Germany.....	157,285	5.86	220,457	6.43	305,555	7.04
Greece.....	3,359	0.13	5,606	0.16	11,996	0.28
Ireland.....	3,440	0.13	4,987	0.15	9,473	0.22
Italy.....	54,805	2.04	89,242	2.60	130,688	3.01
Netherlands.....	57,498	2.14	80,627	2.35	99,248	2.29
Portugal.....	1,460	0.05	3,341	0.10	8,539	0.20
Spain.....	22,199	0.83	46,755	1.36	82,362	1.90
Sweden.....	48,980	1.82	59,058	1.72	71,463	1.65
United Kingdom.....	221,955	8.27	287,156	8.37	351,572	8.10
Japan.....	174,471	6.50	225,335	6.57	318,665	7.34
East Asia-4.....	18,112	0.67	44,004	1.28	144,005	3.32
China.....	9,910	0.37	19,393	0.57	65,326	1.51
Singapore.....	1,179	0.04	3,116	0.09	9,930	0.23
South Korea.....	2,260	0.08	8,769	0.26	40,726	0.94
Taiwan.....	4,763	0.18	12,727	0.37	28,023	0.65
Other regions/countries						
Other Asia						
Bangladesh.....	208	0.01	314	0.01	521	0.01
India.....	14,421	0.54	18,827	0.55	31,534	0.73
Indonesia.....	164	0.01	379	0.01	665	0.02
Malaysia.....	386	0.01	587	0.02	1,277	0.03
Pakistan.....	362	0.01	494	0.01	695	0.02
Philippines.....	341	0.01	455	0.01	682	0.02
Sri Lanka.....	184	0.01	132	0.00	304	0.01
Thailand.....	787	0.03	1,126	0.03	2,456	0.06
Vietnam.....	57	0.00	173	0.01	468	0.01
All others.....	99	0.00	113	0.00	374	0.01
Other Western Europe						
Croatia.....	0	0.00	1,308	0.04	1,783	0.04
Cyprus.....	24	0.00	83	0.00	221	0.01
Iceland.....	314	0.01	747	0.02	983	0.02
Macedonia.....	0	0.00	87	0.00	171	0.00
Norway.....	10,221	0.38	13,507	0.39	19,011	0.44
Slovenia.....	0	0.00	1,309	0.04	2,946	0.07
Switzerland.....	43,605	1.62	61,507	1.79	74,094	1.71
Turkey.....	1,134	0.04	2,854	0.08	10,130	0.23
Yugoslavia.....	2,865	0.11	987	0.03	1,210	0.03
All others.....	67	0.00	137	0.00	245	0.01
Eastern Europe/former USSR.....	52,023	1.94	62,274	1.82	86,426	1.99
Armenia.....	0	0.00	165	0.00	301	0.01
Azerbaijan.....	0	0.00	72	0.00	71	0.00
Bulgaria.....	1,522	0.06	2,029	0.06	2,360	0.05
Belarus.....	0	0.00	727	0.02	1,002	0.02
Czech Republic.....	5,468	0.20	5,993	0.17	9,604	0.22
Estonia.....	0	0.00	594	0.02	1,318	0.03
Georgia.....	0	0.00	164	0.00	329	0.01
Hungary.....	4,755	0.18	6,197	0.18	9,714	0.22
Kazakhstan.....	0	0.00	110	0.00	189	0.00
Latvia.....	0	0.00	326	0.01	434	0.01
Lithuania.....	0	0.00	458	0.01	873	0.02
Moldova.....	0	0.00	156	0.00	179	0.00
Poland.....	8,671	0.32	10,925	0.32	18,672	0.43

Appendix table 5-61

(Page 2 of 2)

Citation of S&E articles, by region and country/economy: 1992, 1997, and 2003

Region and country/economy	1992		1997		2003	
	Number	World share (%)	Number	World share (%)	Number	World share (%)
Romania.....	571	0.02	1,013	0.03	2,063	0.05
Russia.....	0	0.00	28,562	0.83	32,176	0.74
Slovakia.....	0	0.00	1,513	0.04	2,908	0.07
USSR.....	31,036	1.16	53	0.00	0	0.00
Ukraine.....	0	0.00	2,965	0.09	3,921	0.09
Uzbekistan.....	0	0.00	213	0.01	271	0.01
All others.....	0	0.00	40	0.00	39	0.00
Near East/North Africa.....	25,478	0.95	33,994	0.99	50,629	1.17
Algeria.....	127	0.00	197	0.01	437	0.01
Egypt.....	1,455	0.05	1,800	0.05	3,319	0.08
Iran.....	143	0.01	434	0.01	3,116	0.07
Israel.....	21,192	0.79	28,707	0.84	38,447	0.89
Jordan.....	218	0.01	178	0.01	478	0.01
Kuwait.....	460	0.02	227	0.01	689	0.02
Lebanon.....	62	0.00	91	0.00	493	0.01
Morocco.....	180	0.01	362	0.01	926	0.02
Oman.....	48	0.00	64	0.00	167	0.00
Saudi Arabia.....	1,078	0.04	1,219	0.04	1,305	0.03
Tunisia.....	170	0.01	235	0.01	619	0.01
United Arab Emirates.....	33	0.00	198	0.01	330	0.01
All others.....	313	0.01	282	0.01	305	0.01
Central/South America.....	15,563	0.58	26,672	0.78	55,870	1.29
Argentina.....	3,386	0.13	5,697	0.17	10,449	0.24
Brazil.....	5,132	0.19	9,416	0.27	23,680	0.55
Chile.....	1,826	0.07	2,573	0.07	4,639	0.11
Colombia.....	256	0.01	485	0.01	948	0.02
Costa Rica.....	174	0.01	206	0.01	468	0.01
Cuba.....	136	0.01	453	0.01	883	0.02
Mexico.....	2,906	0.11	4,899	0.14	10,494	0.24
Peru.....	223	0.01	218	0.01	395	0.01
Uruguay.....	104	0.00	394	0.01	837	0.02
Venezuela.....	789	0.03	1,355	0.04	1,655	0.04
All others.....	630	0.02	977	0.03	1,421	0.03
Sub-Saharan Africa.....	10,001	0.37	10,910	0.32	13,732	0.32
Cameroon.....	87	0.00	180	0.01	256	0.01
Ethiopia.....	117	0.00	186	0.01	270	0.01
Ghana.....	50	0.00	99	0.00	272	0.01
Kenya.....	791	0.03	862	0.03	1,015	0.02
Nigeria.....	744	0.03	613	0.02	613	0.01
Senegal.....	358	0.01	385	0.01	259	0.01
South Africa.....	6,348	0.24	6,421	0.19	8,017	0.18
Tanzania.....	123	0.00	346	0.01	351	0.01
Uganda.....	68	0.00	204	0.01	386	0.01
Zimbabwe.....	274	0.01	247	0.01	286	0.01
All others.....	1,042	0.04	1,366	0.04	2,006	0.05
Other						0.00
Canada.....	111,661	4.16	141,498	4.12	161,501	3.72
Australia.....	49,989	1.86	64,657	1.88	91,420	2.11
New Zealand.....	8,498	0.32	10,738	0.31	15,342	0.35
All others.....	174	0.01	185	0.01	187	0.00

EU = European Union; USSR = Union of Soviet Socialist Republics

NOTES: Citation counts based on a 3-year period with 2-year lag, e.g., citations for 1999 are references made in articles published in 1999 to articles published in 1995–97. Citations on fractional-count basis, i.e., for cited articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. Detail may not add to total because of rounding. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004 (listed countries plus Luxembourg). Germany data for 1992 include former East Germany. China data include Hong Kong. Czech Republic data for 1992 and 1996 include former Czechoslovakia.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-62

(Page 1 of 6)

Relative prominence of scientific literature, by selected field and region/country/economy: 1995 and 2003

(Relative citation index)

Field, rank, and country/economy	1995	2003	Field, rank, and country/economy	1995	2003
All fields			Clinical medicine		
1 Switzerland	1.189	1.152	1 United States	0.990	1.001
2 United States	1.013	1.026	2 Switzerland	0.955	0.954
3 Netherlands	0.877	0.971	3 Canada	0.834	0.949
4 Denmark	0.835	0.937	4 Netherlands	0.841	0.917
5 United Kingdom	0.830	0.864	5 Finland	0.756	0.861
6 Sweden	0.869	0.860	6 Denmark	0.708	0.834
7 Canada	0.739	0.845	7 United Kingdom	0.796	0.827
8 Finland	0.755	0.826	8 Belgium	0.838	0.820
9 Germany	0.724	0.822	9 Sweden	0.778	0.810
10 Belgium	0.819	0.822	10 Ireland	0.710	0.800
11 Austria	0.747	0.804	11 Austria	0.683	0.772
12 Ireland	0.662	0.764	12 Norway	0.626	0.752
13 France	0.730	0.760	13 Hong Kong	0.524	0.751
14 Israel	0.682	0.742	14 Italy	0.640	0.746
15 EU-15	0.681	0.737	15 France	0.688	0.734
16 Norway	0.624	0.718	16 Germany	0.596	0.721
17 Australia	0.630	0.714	17 EU-15	0.643	0.710
18 Italy	0.632	0.699	18 New Zealand	0.690	0.682
19 Hong Kong	0.438	0.672	19 Austria	0.651	0.658
20 New Zealand	0.566	0.615	20 Israel	0.519	0.635
21 Spain	0.464	0.604	21 Spain	0.513	0.623
22 Japan	0.551	0.575	22 Singapore	0.395	0.567
23 Portugal	0.439	0.514	23 Portugal	na	0.558
24 Singapore	0.422	0.509	24 Hungary	0.500	0.554
25 Hungary	0.443	0.491	25 Japan	0.527	0.553
26 Chile	0.343	0.478	26 South Korea	0.523	0.551
27 Greece	0.327	0.465	27 Greece	0.349	0.500
28 South Korea	0.320	0.439	28 Taiwan	0.447	0.484
29 Thailand	na	0.432	29 Thailand	na	0.484
30 Czech Republic	na	0.417	30 East Asia-4	0.410	0.481
31 Argentina	0.304	0.411	31 Czech Republic	na	0.465
32 Slovenia	na	0.409	32 China	0.308	0.455
33 South Africa	0.325	0.404	33 Poland	0.391	0.451
34 Taiwan	0.321	0.401	34 Mexico	0.393	0.430
35 Mexico	0.349	0.385	35 South Africa	0.334	0.422
36 Poland	0.295	0.360	36 Argentina	0.323	0.406
37 Brazil	0.314	0.359	37 Brazil	0.336	0.392
38 Slovakia	na	0.339	38 Slovenia	na	0.361
39 East Asia-4	0.274	0.335	39 Chile	0.200	0.358
40 Bulgaria	0.166	0.325	40 Egypt	0.220	0.344
41 China	0.218	0.293	41 Saudi Arabia	0.277	0.295
42 India	0.182	0.284	42 Iran	na	0.292
43 Croatia	0.257	0.281	43 Turkey	0.202	0.275
44 Turkey	0.214	0.278	44 India	0.197	0.272
45 Saudi Arabia	0.220	0.256	45 Russia	0.068	0.222

Appendix table 5-62

(Page 2 of 6)

Relative prominence of scientific literature, by selected field and region/country/economy: 1995 and 2003

(Relative citation index)

Field, rank, and country/economy	1995	2003	Field, rank, and country/economy	1995	2003
Biomedical research			Biology		
1 Switzerland	1.165	1.154	1 Switzerland	1.025	1.264
2 United States	1.140	1.122	2 Netherlands.....	0.942	1.077
3 United Kingdom.....	0.857	0.927	3 Sweden	0.942	1.032
4 Israel.....	0.824	0.859	4 United Kingdom.....	0.833	1.024
5 Austria	0.848	0.858	5 Denmark	0.871	0.859
6 Germany.....	0.784	0.849	6 Hong Kong.....	na	0.841
7 Netherlands	0.721	0.832	7 Israel.....	0.713	0.837
8 Canada	0.712	0.789	8 France.....	0.672	0.836
9 Denmark.....	0.620	0.770	9 United States.....	0.807	0.821
10 Belgium	0.669	0.732	10 Belgium.....	0.788	0.815
11 France	0.692	0.731	11 Austria.....	0.654	0.814
12 EU-15	0.661	0.727	12 Germany	0.714	0.810
13 Sweden.....	0.702	0.727	13 Finland	0.681	0.810
14 Finland.....	0.652	0.723	14 Norway.....	0.740	0.788
15 Singapore	0.576	0.716	15 Estonia	na	0.777
16 Australia	0.583	0.713	16 Philippines.....	0.470	0.745
17 Ireland	0.568	0.659	17 EU-15.....	0.621	0.743
18 Norway	0.530	0.654	18 Ireland.....	0.611	0.738
19 Japan.....	0.564	0.609	19 Canada.....	0.676	0.707
20 New Zealand.....	0.493	0.586	20 Italy.....	0.584	0.678
21 Italy.....	0.470	0.557	21 Australia.....	0.645	0.675
22 Hong Kong	na	0.514	22 New Zealand	0.524	0.638
23 Spain	0.336	0.485	23 Portugal.....	0.649	0.620
24 Portugal.....	0.344	0.461	24 Kenya.....	0.347	0.595
25 Chile	0.282	0.441	25 Spain.....	0.445	0.594
26 Hungary.....	0.373	0.409	26 South Korea.....	0.640	0.570
27 South Korea	0.299	0.396	27 Chile.....	0.444	0.562
28 Taiwan	0.329	0.370	28 Hungary	0.612	0.558
29 Greece	0.277	0.365	29 Czech Republic.....	na	0.533
30 Mexico.....	0.253	0.359	30 South Africa.....	0.455	0.523
31 South Africa	0.201	0.328	31 Slovakia	na	0.521
32 Poland.....	0.219	0.327	32 Singapore.....	0.557	0.518
33 East Asia-4.....	0.323	0.324	33 Indonesia.....	na	0.517
34 Czech Republic	na	0.304	34 Colombia.....	0.483	0.496
35 Argentina	0.229	0.296	35 Malaysia.....	0.387	0.493
36 Slovenia.....	na	0.251	36 Thailand	0.512	0.484
37 Brazil	0.185	0.246	37 Greece	0.411	0.465
38 Turkey.....	na	0.234	38 Argentina.....	0.361	0.460
39 China	0.259	0.232	39 Japan	0.442	0.456
40 Slovakia	na	0.226	40 Poland.....	0.372	0.454
41 India	0.100	0.183	41 East Asia-4.....	0.388	0.427
42 Bulgaria	0.049	0.180	42 Bulgaria.....	0.247	0.425
43 Russia.....	0.109	0.158	43 Taiwan	0.287	0.423
44 Ukraine	0.057	0.134	44 Brazil.....	0.348	0.421

Appendix table 5-62

(Page 3 of 6)

Relative prominence of scientific literature, by selected field and region/country/economy: 1995 and 2003

(Relative citation index)

Field, rank, and country/economy	1995	2003	Field, rank, and country/economy	1995	2003
Chemistry			Physics		
1 Hong Kong	0.722	1.266	1 Switzerland	1.338	1.304
2 Netherlands	1.017	1.193	2 Denmark	1.232	1.264
3 Switzerland	1.104	1.128	3 United States	1.138	1.097
4 Denmark	1.050	1.127	4 Netherlands	1.060	1.055
5 United States	1.121	1.114	5 Austria	0.852	1.037
6 Israel	0.950	1.045	6 Hong Kong	0.439	1.015
7 Sweden	1.222	1.011	7 New Zealand	0.863	0.979
8 Canada	0.991	1.004	8 Germany	0.950	0.950
9 Ireland	0.819	0.996	9 Israel	0.884	0.877
10 United Kingdom	0.843	0.943	10 United Kingdom	0.819	0.871
11 Belgium	0.744	0.870	11 Sweden	0.834	0.870
12 Germany	0.723	0.846	12 Ireland	0.823	0.861
13 Austria	0.685	0.811	13 Belgium	0.763	0.830
14 France	0.678	0.791	14 France	0.795	0.809
15 Australia	0.803	0.785	15 EU-15	0.778	0.794
16 EU-15	0.693	0.781	16 Canada	0.788	0.783
17 Singapore	0.608	0.759	17 Finland	0.795	0.782
18 New Zealand	0.724	0.754	18 Spain	0.534	0.764
19 Italy	0.710	0.742	19 Norway	0.777	0.764
20 Norway	0.638	0.710	20 Slovenia	0.623	0.688
21 Spain	0.522	0.679	21 Australia	0.627	0.682
22 Finland	0.661	0.671	22 Italy	0.678	0.679
23 Japan	0.596	0.627	23 Portugal	0.594	0.649
24 Greece	0.459	0.600	24 Singapore	0.256	0.633
25 Portugal	0.572	0.570	25 Slovakia	na	0.623
26 South Korea	0.382	0.547	26 Hungary	0.570	0.620
27 Slovenia	0.463	0.539	27 Greece	0.553	0.618
28 Taiwan	0.472	0.537	28 Chile	na	0.612
29 South Africa	0.470	0.486	29 Japan	0.546	0.569
30 Venezuela	0.581	0.483	30 Czech Republic	na	0.567
31 Argentina	0.291	0.481	31 Argentina	0.414	0.495
32 Czech Republic	na	0.479	32 South Korea	0.397	0.489
33 Thailand	na	0.464	33 Bulgaria	0.274	0.487
34 Brazil	0.449	0.442	34 Poland	0.434	0.485
35 Hungary	0.402	0.424	35 Iran	na	0.484
36 Mexico	0.464	0.422	36 Taiwan	0.328	0.467
37 Bulgaria	0.295	0.418	37 India	0.285	0.411
38 East Asia-4	0.377	0.409	38 Brazil	0.412	0.410
39 Slovakia	na	0.405	39 Mexico	0.352	0.403
40 India	0.253	0.373	40 South Africa	0.380	0.378
41 Chile	0.264	0.362	41 Romania	0.325	0.378
42 China	0.314	0.358	42 Lithuania	na	0.363
43 Malaysia	na	0.346	43 East Asia-4	0.256	0.363
44 Poland	0.300	0.344	44 Turkey	0.375	0.344
45 Croatia	0.215	0.334	45 China	0.227	0.329

Appendix table 5-62

(Page 4 of 6)

Relative prominence of scientific literature, by selected field and region/country/economy: 1995 and 2003

(Relative citation index)

Field, rank, and country/economy	1995	2003	Field, rank, and country/economy	1995	2003
Earth and space sciences			Engineering and technology		
1 Netherlands	0.803	1.000	1 Switzerland	1.013	1.196
2 United States	0.985	0.964	2 Denmark	1.253	1.010
3 Chile	1.038	0.933	3 Netherlands.....	0.872	0.969
4 Switzerland.....	1.051	0.928	4 Ireland.....	0.652	0.918
5 Germany	0.843	0.927	5 United States.....	0.854	0.898
6 Denmark.....	0.712	0.857	6 Germany	0.587	0.885
7 United Kingdom.....	0.808	0.842	7 Hong Kong.....	0.455	0.869
8 Hong Kong	0.301	0.827	8 Sweden	0.853	0.791
9 Israel.....	0.534	0.794	9 Austria.....	0.638	0.755
10 Sweden.....	0.693	0.765	10 New Zealand	0.494	0.751
11 France	0.728	0.746	11 Belgium.....	0.711	0.745
12 Italy.....	0.638	0.735	12 Australia.....	0.712	0.738
13 Belgium	0.664	0.725	13 Norway.....	0.537	0.733
14 EU-15	0.659	0.723	14 Czech Republic.....	na	0.725
15 Austria.....	0.516	0.696	15 France.....	0.731	0.722
16 Australia	0.678	0.695	16 Israel	0.615	0.710
17 Canada	0.683	0.659	17 Spain.....	0.600	0.692
18 Finland.....	0.490	0.658	18 EU-15.....	0.598	0.684
19 Norway	0.566	0.632	19 United Kingdom.....	0.676	0.684
20 Japan.....	0.538	0.579	20 Portugal.....	0.514	0.674
21 Spain	0.463	0.578	21 Slovenia	0.540	0.674
22 Mexico.....	0.460	0.574	22 Canada.....	0.646	0.672
23 Portugal	0.261	0.557	23 Belarus.....	0.156	0.638
24 Hungary.....	0.414	0.553	24 Singapore.....	0.319	0.626
25 Ireland	0.570	0.545	25 Finland.....	0.547	0.604
26 Poland.....	0.402	0.536	26 Argentina.....	0.431	0.603
27 Brazil	0.343	0.515	27 Italy.....	0.639	0.599
28 Greece.....	0.250	0.495	28 South Korea.....	0.473	0.569
29 Ukraine	0.118	0.477	29 Thailand	na	0.556
30 New Zealand.....	0.442	0.473	30 Japan	0.524	0.550
31 South Korea	0.250	0.468	31 Brazil.....	0.427	0.521
32 Croatia	0.280	0.462	32 Greece	0.370	0.518
33 Czech Republic	na	0.454	33 Mexico	0.451	0.504
34 Argentina	0.278	0.447	34 China.....	0.385	0.501
35 South Africa	0.448	0.419	35 Bulgaria.....	0.314	0.495
36 Bulgaria	0.128	0.370	36 Taiwan	0.414	0.467
37 China	0.278	0.365	37 Chile.....	na	0.459
38 Taiwan	0.432	0.362	38 East Asia-4.....	0.387	0.457
39 East Asia-4.....	0.270	0.361	39 India.....	0.348	0.453
40 Venezuela	1.523	0.320	40 Poland.....	0.409	0.451
41 Singapore	na	0.313	41 South Africa.....	0.471	0.446
42 Turkey.....	0.256	0.299	42 Hungary	0.693	0.441
43 India	0.190	0.282	43 Jordan.....	na	0.436
44 Morocco.....	na	0.262	44 Iran	na	0.432
45 Russia.....	0.174	0.260	45 Slovakia	na	0.422

Appendix table 5-62

(Page 5 of 6)

Relative prominence of scientific literature, by selected field and region/country/economy: 1995 and 2003

(Relative citation index)

Field, rank, and country/economy	1995	2003	Field, rank, and country/economy	1995	2003
Mathematics			Social sciences		
1 Hong Kong	0.772	1.666	1 Switzerland	0.544	0.955
2 Switzerland	1.022	1.035	2 Sweden	0.791	0.903
3 Singapore	0.451	0.948	3 Singapore	0.373	0.842
4 Finland	0.802	0.931	4 United States	0.837	0.812
5 Belgium	0.683	0.918	5 Denmark	0.917	0.767
6 United States	0.874	0.907	6 Hong Kong	0.364	0.709
7 United Kingdom	0.869	0.897	7 United Kingdom	0.534	0.697
8 Denmark	1.759	0.881	8 Chile	na	0.683
9 Sweden	0.773	0.871	9 New Zealand	0.639	0.672
10 Netherlands	0.804	0.861	10 Belgium	0.476	0.667
11 Germany	0.602	0.797	11 Netherlands	0.495	0.662
12 Israel	0.659	0.750	12 Finland	0.587	0.659
13 Portugal	0.310	0.747	13 Italy	0.490	0.641
14 Australia	0.626	0.728	14 Spain	0.546	0.625
15 Austria	0.499	0.706	15 Ireland	0.458	0.622
16 EU-15	0.663	0.690	16 Canada	0.641	0.612
17 France	0.610	0.659	17 South Korea	0.690	0.567
18 Norway	0.975	0.657	18 France	0.308	0.563
19 Canada	0.603	0.645	19 Norway	0.468	0.557
20 New Zealand	0.734	0.643	20 Israel	0.606	0.543
21 Chile	0.354	0.630	21 East Asia-4	0.396	0.543
22 Taiwan	0.596	0.603	22 Mexico	0.535	0.543
23 Greece	0.337	0.592	23 EU-15	0.400	0.536
24 Italy	0.530	0.586	24 Australia	0.462	0.523
25 Czech Republic	0.235	0.578	25 Portugal	0.665	0.520
26 Ireland	0.896	0.550	26 China	0.703	0.509
27 Ukraine	0.344	0.543	27 Hungary	0.520	0.487
28 Bulgaria	0.406	0.533	28 Austria	0.372	0.485
29 Venezuela	0.447	0.507	29 Taiwan	0.278	0.480
30 Romania	0.405	0.495	30 Germany	0.241	0.439
31 Slovenia	na	0.481	31 South Africa	0.284	0.401
32 Brazil	0.777	0.475	32 Greece	0.469	0.386
33 Slovakia	na	0.474	33 Brazil	0.386	0.320
34 Argentina	0.466	0.474	34 Argentina	0.145	0.317
35 Spain	0.457	0.465	35 Japan	0.291	0.309
36 Hungary	0.323	0.459	36 Poland	0.399	0.292
37 Poland	0.339	0.439	37 Turkey	0.342	0.263
38 East Asia-4	0.362	0.434	38 India	0.135	0.259
39 South Africa	0.585	0.433	39 Nigeria	0.243	0.233
40 India	0.334	0.401	40 Slovenia	na	0.213
41 Japan	0.584	0.393	41 Croatia	0.209	0.119
42 Mexico	0.221	0.392	42 Ukraine	na	0.112
43 China	0.298	0.386	43 Czech Republic	na	0.104
44 Egypt	0.351	0.373	44 Russia	0.116	0.094
45 Lithuania	na	0.370	45 Slovakia	na	0.035

Appendix table 5-62

(Page 6 of 6)

Relative prominence of scientific literature, by selected field and region/country/economy: 1995 and 2003

(Relative citation index)

Field, rank, and country/economy	1995	2003	Field, rank, and country/economy	1995	2003
Psychology			Psychology (continued)		
1 Canada	0.830	0.847	21 Austria.....	0.644	0.554
2 United Kingdom.....	0.728	0.819	22 Norway.....	0.606	0.534
3 United States	0.747	0.773	23 Germany	0.360	0.516
4 Netherlands	0.727	0.752	24 Spain.....	0.319	0.512
5 Belgium	0.520	0.732	25 China.....	na	0.501
6 Hungary.....	0.470	0.705	26 East Asia-4.....	0.323	0.436
7 Italy.....	0.591	0.694	27 Brazil.....	0.679	0.433
8 Sweden.....	0.691	0.694	28 Poland.....	0.312	0.401
9 Israel.....	0.515	0.676	29 Portugal.....	na	0.399
10 Finland.....	0.621	0.670	30 India.....	0.172	0.380
11 New Zealand.....	0.607	0.647	31 Japan.....	0.230	0.349
12 Australia	0.591	0.645	32 Turkey.....	na	0.332
13 Switzerland.....	0.637	0.643	33 Singapore.....	na	0.299
14 France	0.478	0.638	34 Greece	na	0.288
15 South Korea	na	0.634	35 Taiwan	0.416	0.286
16 EU-15	0.491	0.601	36 Mexico	0.251	0.267
17 Denmark.....	0.513	0.585	37 South Africa.....	0.283	0.261
18 Argentina	0.302	0.571	38 Czech Republic.....	na	0.207
19 Hong Kong	0.261	0.567	39 Russia.....	0.104	0.085
20 Ireland	0.283	0.563	40 Slovakia	na	0.056

na = not applicable

EU = European Union

NOTES: Relative prominence of scientific literature measured on basis of relative citation index of country/economy, i.e., country/economy's share of cited literature adjusted for its share of published literature. Country/economy's citation of own literature excluded. Index of 1.00 indicates country/economy's share of cited literature equals its world share of scientific literature. Index >1.00 or <1.00 indicates country/economy cited relatively more/less than indicated by its share of scientific literature. Countries/economies with share of world publications in cited field <0.10% during period either excluded or na. Citations on fractional-count basis, i.e., for cited articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004. East Asia-4 consists of China (including Hong Kong), Singapore, South Korea, and Taiwan.

SOURCES: Thomson ISI, *Science Citation Index* and *Social Sciences Citation Index*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-63

Share of highly cited S&E articles, by frequency of citation and region or country/economy: 1992–2003

(Percent distribution)

Frequency of citation and region or country/economy	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All cited S&E articles.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States.....	37.6	37.5	37.2	36.8	36.1	35.5	34.8	33.9	33.0	32.2	31.7	31.2
EU-15.....	29.2	29.3	29.7	30.3	31.1	31.7	32.2	32.6	32.9	33.0	33.0	32.7
Japan.....	7.4	7.6	7.8	8.0	8.1	8.2	8.3	8.4	8.6	8.7	8.8	8.8
East Asia-4.....	1.8	1.9	2.1	2.4	2.7	3.0	3.3	3.8	4.3	4.8	5.3	6.0
Other.....	24.0	23.7	23.2	22.5	22.0	21.6	21.4	21.3	21.2	21.2	21.2	21.3
Top 1%.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States.....	64.6	63.8	63.0	62.1	62.0	61.6	61.8	60.6	59.8	58.2	57.2	56.6
EU-15.....	23.3	23.8	24.3	24.5	24.6	25.1	24.7	25.2	25.6	27.0	27.5	27.7
Japan.....	4.2	4.5	4.5	4.6	4.5	4.4	4.3	4.6	5.0	5.1	5.1	5.3
East Asia-4.....	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.8	1.1
Other.....	7.8	7.8	8.0	8.6	8.7	8.8	8.9	9.1	9.2	9.2	9.3	9.3
Top 5%.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States.....	58.5	58.0	58.2	57.3	56.2	55.2	54.8	54.0	52.8	51.1	50.5	50.3
EU-15.....	26.2	26.7	26.8	27.1	28.0	28.8	29.0	29.4	29.8	30.9	31.1	30.7
Japan.....	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.4	5.7	6.0	5.9	6.0
East Asia-4.....	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.7	0.9	1.1	1.5	1.9
Other.....	9.8	9.7	9.5	10.0	10.1	10.4	10.4	10.5	10.8	10.9	11.0	11.0
Top 10%.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States.....	56.0	55.6	54.6	53.7	52.7	51.5	50.8	49.7	48.9	47.2	46.7	46.5
EU-15.....	27.3	27.9	28.4	29.0	29.8	30.5	30.9	31.5	31.8	32.7	32.5	32.3
Japan.....	5.7	5.6	5.8	5.7	5.7	5.9	5.9	6.1	6.4	6.6	6.6	6.6
East Asia-4.....	0.4	0.4	0.5	0.6	0.7	0.7	0.9	1.1	1.3	1.4	2.0	2.4
Other.....	10.6	10.5	10.7	11.0	11.1	11.4	11.5	11.6	11.7	12.0	12.2	12.2

EU = European Union

NOTES: Citations are references to scientific articles in journals covered by *Science Citation Index (SCI)* and *Social Sciences Citation Index (SSCI)*. Citation counts based on a 3-year period with 2-year lag (e.g., citations for 2003 are references made in articles published in 2003 to articles published in 1999–2001). Citations on fractional-count basis, i.e., for cited articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004. East Asia-4 consists of China, Singapore, South Korea, and Taiwan. China includes Hong Kong.

SOURCES: Thomson ISI, SCI and SSCI, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-64

Share of citations in highly cited S&E journals, by frequency of citation and region or country/economy: 1992–2003

(Percent distribution)

Frequency of citation and region or country/economy	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All cited S&E journals.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States.....	37.8	37.6	37.2	36.8	36.0	35.5	34.7	34.1	33.1	32.2	31.5	31.1
EU-15.....	29.1	29.4	29.8	30.3	31.0	31.5	32.1	32.5	32.9	33.1	33.1	32.8
Japan.....	7.4	7.5	7.8	7.9	8.1	8.2	8.3	8.4	8.6	8.7	8.8	8.8
East Asia-4.....	1.8	1.9	2.1	2.4	2.6	2.9	3.3	3.7	4.2	4.8	5.3	5.9
Other.....	23.9	23.5	23.1	22.6	22.3	21.9	21.6	21.4	21.2	21.3	21.3	21.4
Top 1%.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States.....	68.5	68.1	67.5	66.7	65.8	65.3	64.8	64.0	62.7	61.5	60.3	59.3
EU-15.....	19.9	20.4	20.6	20.8	21.4	21.9	22.5	23.0	23.8	24.5	25.3	25.7
Japan.....	3.0	3.1	3.3	3.5	3.7	3.8	3.7	3.7	3.9	4.1	4.4	4.6
East Asia-4.....	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.8
Other.....	8.5	8.4	8.4	8.8	8.8	8.7	8.7	8.9	9.1	9.3	9.4	9.6
Top 5%.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States.....	61.9	61.2	60.2	59.0	57.6	56.7	55.6	54.2	52.4	50.8	49.7	49.1
EU-15.....	22.4	23.3	23.9	24.7	25.5	26.3	27.1	28.1	29.3	30.2	30.7	30.8
Japan.....	4.8	4.8	5.0	5.1	5.3	5.3	5.4	5.6	5.9	6.2	6.5	6.7
East Asia-4.....	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.8	1.0	1.2	1.5	1.8
Other.....	10.5	10.4	10.5	10.7	11.0	11.2	11.1	11.3	11.4	11.6	11.6	11.7
Top 10%.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States.....	55.9	55.2	54.3	53.0	51.5	50.3	49.1	47.8	46.4	45.0	44.3	43.7
EU-15.....	25.4	26.0	26.5	27.3	28.2	29.1	30.0	30.9	31.8	32.4	32.6	32.6
Japan.....	6.0	6.1	6.3	6.4	6.6	6.6	6.7	6.9	7.1	7.4	7.6	7.7
East Asia-4.....	0.7	0.7	0.8	0.9	1.1	1.2	1.4	1.6	1.8	2.1	2.4	2.8
Other.....	12.0	12.0	12.1	12.3	12.6	12.7	12.8	12.9	12.9	13.1	13.1	13.2

EU = European Union

NOTES: Journals are those covered by *Science Citation Index (SCI)* and *Social Sciences Citation Index (SSCI)*. Journals ranked by average number of citations to articles published in journal. Citation counts based on a 3-year period with 2-year lag (e.g., citations for 2003 are references made in articles published in 2003 to articles published in 1999–2001). Citations on a fractional-count basis, i.e., for articles with collaborating institutions from multiple countries/economies, each country/economy receives fractional credit on basis of proportion of its participating institutions. EU-15 consists of 15 EU countries before expansion of member countries on May 1, 2004. East Asia-4 consists of China, Singapore, South Korea, and Taiwan. China includes Hong Kong.

SOURCES: Thomson ISI, *SCI* and *SSCI*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Science and Engineering Indicators 2006

Appendix table 5-65
Citation of S&E material in U.S. patents: 1987–2004

Year	All citations		Average citations per patent	
	S&E material	S&E articles	S&E material	S&E articles
1987.....	33,533	17,133	0.40	0.21
1988.....	36,140	19,107	0.46	0.25
1989.....	52,139	28,658	0.55	0.30
1990.....	52,292	29,506	0.58	0.33
1991.....	60,959	35,546	0.63	0.37
1992.....	70,902	42,879	0.73	0.44
1993.....	89,680	57,338	0.91	0.58
1994.....	99,062	60,997	0.97	0.60
1995.....	122,170	72,922	1.20	0.72
1996.....	159,803	103,330	1.46	0.94
1997.....	223,439	155,686	1.99	1.39
1998.....	311,689	220,080	2.11	1.49
1999.....	308,159	219,634	2.01	1.43
2000.....	310,393	220,215	1.97	1.40
2001.....	346,145	246,668	2.08	1.48
2002.....	360,548	248,783	2.15	1.49
2003.....	379,423	263,206	2.24	1.56
2004.....	349,606	233,294	2.13	1.42

NOTES: S&E material constitutes references to articles in all scientific journals and nonarticle materials such as reports, technical notes, and conference proceedings. S&E articles are in publications referenced by *Science Citation Index (SCI)* and *Social Sciences Citation Index (SSCI)*. Citation counts based on a 12-year period with 3-year lag, e.g., citations for 2004 are references in U.S. patents issued in 2004 to articles published in 1989–2001.

SOURCES: Thomson ISI, *SCI* and *SSCI*, <http://www.isinet.com/products/citation/>; iPLQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-66

(Page 1 of 2)

Citation of U.S. S&E articles in U.S. patents, by field and sector: 1995–2004

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
All fields.....	16,633	23,531	32,583	44,466	42,317	39,360	42,766	39,675	37,138	31,154
Academic	9,399	13,557	18,665	25,824	24,983	23,728	25,557	23,348	22,193	19,074
Industry.....	4,155	5,522	7,288	9,602	8,799	8,234	8,648	8,493	7,870	6,573
Federal government.....	1,168	1,690	2,419	3,396	3,151	2,505	2,707	2,375	2,284	1,634
Nonprofit institutions	1,322	2,045	3,297	4,400	4,155	3,806	4,445	4,056	3,465	2,622
FFRDCs	432	476	604	810	830	727	990	980	957	922
State/local government.....	70	125	155	186	184	161	162	138	125	101
Other	86	115	155	248	215	199	256	285	244	229
Clinical medicine	4,461	6,679	10,063	14,133	13,240	11,805	12,961	11,776	10,748	8,322
Academic	2,659	3,908	5,820	8,308	7,763	6,953	7,738	6,827	6,322	4,960
Industry.....	777	1,199	1,905	2,670	2,439	2,174	2,252	2,135	1,977	1,495
Federal government.....	390	598	870	1,199	1,209	979	1,059	975	891	549
Nonprofit institutions	522	804	1,248	1,647	1,535	1,465	1,641	1,591	1,345	1,125
FFRDCs	39	51	87	110	116	69	77	68	73	78
State/local government.....	42	72	78	95	102	83	85	66	61	54
Other	32	47	66	115	84	83	108	115	79	62
Biomedical research.....	5,943	9,620	14,386	21,006	19,776	17,717	19,334	17,250	14,856	11,401
Academic	3,541	5,761	8,493	12,646	12,163	11,141	11,909	10,560	9,159	7,169
Industry.....	1,132	1,787	2,610	3,759	3,391	3,029	3,325	3,111	2,631	1,976
Federal government.....	499	780	1,168	1,697	1,449	1,092	1,186	947	857	642
Nonprofit institutions	648	1,078	1,815	2,469	2,350	2,117	2,427	2,116	1,780	1,260
FFRDCs	87	144	192	288	280	205	326	344	279	209
State/local government.....	24	44	64	81	73	67	68	57	44	36
Other	12	27	43	68	70	65	93	115	106	108
Biology	399	585	705	940	1,185	1,041	1,045	873	721	499
Academic	247	409	469	602	819	695	682	543	440	340
Industry.....	69	63	101	143	149	149	141	140	111	71
Federal government.....	59	76	87	129	141	128	156	137	129	55
Nonprofit institutions	16	24	37	53	64	63	55	44	32	25
FFRDCs	4	6	6	9	6	5	4	6	3	3
State/local government.....	2	1	3	2	2	1	2	0	2	2
Other	2	6	3	2	4	0	3	2	4	3
Chemistry.....	2,106	2,633	3,254	3,567	3,472	3,943	4,666	4,726	4,557	4,113
Academic	1,379	1,680	1,995	2,120	1,990	2,510	2,741	2,869	2,844	2,683
Industry.....	501	709	949	1,047	1,020	1,028	1,263	1,261	1,132	903
Federal government.....	55	80	89	134	164	113	102	77	122	123
Nonprofit institutions	77	84	107	140	126	107	266	247	237	148
FFRDCs	79	65	97	115	158	169	268	236	182	231
State/local government.....	1	6	7	4	5	2	5	9	15	5
Other	14	8	9	8	9	14	21	25	26	21
Physics.....	2,152	2,172	2,237	2,470	2,440	2,513	2,534	2,686	3,584	3,741
Academic	853	932	985	1,050	1,151	1,216	1,341	1,358	2,033	2,285
Industry.....	979	971	899	1,024	937	985	831	944	1,039	1,027
Federal government.....	111	83	144	137	113	101	117	130	172	141
Nonprofit institutions	34	24	51	40	42	16	21	19	30	22
FFRDCs	168	157	151	210	191	189	221	227	301	257
State/local government.....	0	0	0	0	0	0	0	0	0	0
Other	7	6	6	10	6	5	3	8	9	10
Engineering/technology	1,460	1,713	1,783	2,119	1,995	2,051	2,005	2,160	2,375	2,824
Academic	644	791	812	956	959	1,007	1,001	1,069	1,206	1,487
Industry.....	682	767	806	943	839	841	799	879	921	1,049
Federal government.....	44	64	49	72	54	69	72	85	92	101
Nonprofit institutions	22	21	28	38	32	25	22	28	30	33
FFRDCs	48	51	64	72	75	82	87	85	108	131
State/local government.....	0	0	0	1	0	5	0	0	0	1
Other	19	18	24	36	35	22	25	12	17	23

Appendix table 5-66

(Page 2 of 2)

Citation of U.S. S&E articles in U.S. patents, by field and sector: 1995–2004

Field and sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Other ^a	113	128	157	229	208	290	220	205	299	253
Academic.....	75	78	92	142	137	205	144	121	189	151
Industry.....	15	27	18	17	24	28	37	22	60	52
Federal government.....	10	10	13	29	20	23	16	23	22	23
Nonprofit institutions.....	3	9	11	12	4	13	11	11	10	9
FFRDCs.....	7	1	5	7	4	8	6	13	10	12
State/local government.....	1	2	3	3	2	3	2	5	4	3
Other.....	1	2	3	9	7	9	4	8	3	1

FFRDC = federally funded research and development center

^aFields of earth and space sciences, mathematics, social sciences, psychology, health sciences, and professional fields.

NOTES: Citations are references to U.S. S&E articles in journals referenced by *Science Citation Index (SCI)* and *Social Sciences Citation Index (SSCI)*. Citations on fractional-count basis, i.e., for cited articles with collaborating institutions from more than one sector, each sector receives fractional credit on basis of proportion of its participating institutions. Citation counts based on a 6-year window with 2-year lag, e.g., citations for 2002 are references in U.S. patents issued in 2002 to articles published in 1995–2000. Sector determined by cited paper's institutional address. Scientific field determined by iplQ's classification. Computer sciences included in engineering/technology. Detail may not add to total because of rounding.

SOURCES: U.S. Patent and Trademark Office; Thomson ISI, *SCI* and *SSCI*, <http://www.isinet.com/products/citation/>; iplQ, Inc.; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-67

(Page 1 of 2)

U.S. patenting activity of U.S. universities and colleges: 1983–93

Variable	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Institutions awarded patents.....	85	104	115	123	129	127	153	149	160	156	163
Public.....	53	57	65	73	71	68	86	86	93	89	97
Private.....	30	47	46	48	53	53	59	58	57	57	59
Other.....	2	0	4	2	5	6	8	5	10	10	7
Patents awarded to all institutions.....	434	551	589	670	820	814	1,225	1,182	1,344	1,542	1,622
Public.....	227	259	308	353	398	406	651	672	800	907	931
Private.....	182	267	257	299	396	387	546	484	510	599	645
Top 100 R&D institutions											
Combined top 25 R&D institutions.....	228	278	294	336	430	446	668	652	750	796	865
Percent.....	53	50	50	50	52	55	55	55	56	52	53
Combined top 100 R&D institutions.....	334	404	448	513	666	666	1,003	983	1,112	1,290	1,351
Percent.....	77	73	76	77	81	82	82	83	83	84	83
Top 100 R&D institutions, 1994–2003											
Public universities											
University of California.....	48	46	42	54	67	60	81	65	84	81	115
University of Texas.....	5	8	20	25	21	21	51	56	84	73	86
University of Wisconsin.....	13	16	17	17	11	20	27	16	45	43	57
University of Michigan.....	2	1	1	10	6	14	23	27	21	21	19
University of Florida.....	6	10	7	10	13	21	33	33	38	42	34
State University of New York.....	2	11	5	11	18	10	25	20	27	34	30
Michigan State University.....	3	3	3	10	6	8	2	7	11	19	13
University of Minnesota.....	5	6	11	16	28	26	40	38	32	31	27
University of Washington.....	2	3	1	2	1	6	5	7	11	12	11
Iowa State University.....	10	14	21	9	15	15	28	30	39	23	29
Pennsylvania State University.....	0	0	0	0	1	1	1	3	6	7	10
North Carolina State University.....	0	2	3	4	6	5	10	14	11	24	27
University of Utah.....	15	9	11	7	12	9	13	14	5	13	20
University of North Carolina.....	1	0	0	3	2	2	6	8	3	11	14
Georgia Institute of Technology.....	3	6	11	9	9	7	8	18	11	16	16
University of Maryland.....	1	0	0	3	2	2	1	4	4	14	21
University of Pittsburg.....	5	8	3	8	10	6	11	11	16	10	10
University of Alabama.....	1	1	5	3	5	3	3	6	3	7	6
Rutgers University.....	0	1	1	0	2	2	7	2	15	12	15
University of Illinois.....	8	8	10	12	4	9	15	7	8	10	13
University of Nebraska.....	0	5	1	1	1	4	0	3	4	4	10
University of Iowa.....	3	4	1	8	8	6	8	12	6	7	11
Ohio State University.....	9	3	12	5	13	14	13	10	15	21	10
Louisiana State University.....	1	1	1	1	3	4	9	4	5	20	16
Texas A&M University.....	2	3	8	3	6	9	8	9	12	14	22
University of Massachusetts.....	0	1	1	0	2	1	3	3	6	5	4
University of Kentucky.....	6	7	5	7	4	7	6	4	7	7	4
Purdue University.....	11	14	18	9	4	2	11	15	11	5	6
University of Tennessee.....	0	1	5	8	8	8	12	14	10	12	4
University of Virginia.....	4	2	1	4	3	4	8	12	11	9	7
University of South Florida.....	0	0	0	1	0	0	2	2	7	5	7
Virginia Polytechnic Institute.....	0	0	0	0	0	2	7	4	11	18	12
University of Georgia.....	7	7	5	6	4	0	3	5	8	10	18
University of New Mexico.....	0	0	2	3	1	3	9	9	10	11	5
Oregon Health Sciences University.....	0	0	0	0	3	0	3	4	6	5	5
City University of New York.....	3	2	1	2	1	3	2	2	5	3	3
University of Oklahoma.....	1	1	3	2	2	6	2	4	4	7	13
University of Colorado.....	0	0	0	0	1	0	4	9	6	19	7
University of Missouri.....	5	4	0	3	8	9	5	6	7	9	8
Florida State University.....	0	1	0	2	2	1	1	1	1	2	9
University of Connecticut.....	0	0	1	1	2	1	2	8	3	9	9
Wayne State University.....	1	0	1	5	6	7	16	9	8	16	12
University of Cincinnati.....	0	2	1	8	3	8	8	9	9	7	8
Clemson University.....	0	2	2	1	3	3	6	6	2	10	4
University of Medicine and Dentistry of New Jersey.....	1	0	1	4	7	2	4	7	2	6	1
University of Kansas.....	2	2	1	0	2	0	1	3	4	7	3
Washington State University.....	2	0	2	2	2	1	5	3	3	3	2
University of Hawaii.....	1	0	2	0	1	3	2	6	2	5	8

Appendix table 5-67

(Page 2 of 2)

U.S. patenting activity of U.S. universities and colleges: 1983–93

Variable	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
University of Arizona.....	2	1	2	2	0	0	1	2	1	1	3
Indiana University.....	3	2	4	0	3	1	6	1	3	6	1
Oregon State University.....	1	0	2	3	0	2	1	1	6	9	5
Arizona State University.....	0	1	1	1	2	0	9	9	12	6	2
Colorado State University.....	0	0	1	3	4	2	0	2	4	1	4
Mississippi State University.....	0	0	0	0	0	0	0	0	0	0	1
Utah State University.....	0	1	3	2	2	1	1	2	3	2	2
University of South Carolina.....	0	2	1	1	0	4	2	0	4	6	2
Medical University of South Carolina.....	0	0	0	1	0	1	0	1	0	0	0
University of Alaska.....	0	0	0	0	0	0	0	0	1	1	1
Private universities											
Massachusetts Institute of Technology.....	47	47	35	45	63	64	101	109	101	125	112
California Institute of Technology.....	16	15	16	23	27	18	56	30	36	32	29
Stanford University.....	16	36	38	33	48	54	43	36	57	42	50
Johns Hopkins University.....	6	10	15	18	18	21	27	15	25	20	33
Cornell University.....	10	14	20	13	30	16	22	34	40	41	35
University of Pennsylvania.....	2	4	5	1	2	1	9	19	18	26	34
Columbia University.....	2	3	4	7	6	15	19	16	8	17	17
Duke University.....	3	6	4	6	4	9	11	7	6	9	12
Harvard University.....	10	7	1	2	9	17	15	23	9	16	17
Washington University.....	1	1	3	1	7	6	12	7	22	18	18
Princeton University.....	0	0	0	0	2	1	12	4	13	4	11
Rockefeller University.....	1	3	5	4	9	11	6	8	14	23	23
Yale University.....	2	2	5	3	12	6	11	10	4	12	14
New York University.....	3	4	5	3	5	4	10	14	8	11	19
Northwestern University.....	3	2	2	8	10	10	7	5	4	8	8
University of Chicago.....	0	2	0	0	1	6	7	2	0	0	6
Emory University.....	0	0	1	1	0	0	7	3	10	6	14
Carnegie-Mellon University.....	0	3	3	3	1	2	5	3	5	10	4
Baylor University.....	2	2	3	2	7	3	8	8	6	9	11
University of Southern California.....	1	7	5	5	4	7	8	6	5	18	13
Boston University.....	2	2	3	6	9	9	9	11	6	22	15
Case Western Reserve University.....	0	1	1	6	3	1	1	2	1	9	6
Vanderbilt University.....	1	0	0	5	4	4	4	5	7	4	7
Yeshiva University.....	0	1	4	1	6	1	5	1	0	1	4
University of Rochester.....	9	6	2	8	9	11	11	13	12	10	11
Dartmouth College.....	2	0	2	1	0	3	2	4	1	1	4
University of Miami.....	0	4	4	3	15	5	5	1	1	5	2
Affiliated organizations											
Mayo Foundation.....	0	0	3	1	1	0	3	4	4	8	9
Associated Universities, Inc.	0	0	0	0	0	1	3	7	7	5	5
Research Triangle Institute.....	3	0	2	2	4	2	3	6	8	4	7

NOTES: Data include institutions affiliated with academic institutions, such as university and alumni organizations, federally funded research and development centers, foundations, and university associations. Data for certain institutions are for entire university system and incorporate data from various campuses. Number of patents awarded to public and private institutions are estimated because data for a small number of institutions could not be reconciled. Patents awarded to public and private institutions do not sum to total because patents for other organizations are excluded. Top 100 R&D institutions ranked by sum of their patents from 1994 through 2003.

SOURCES: U.S. Patent and Trademark Office, *Technology Assessment and Forecast Report: U.S. Colleges and Universities, 1969–2003* (2005); and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-68

(Page 1 of 2)

U.S. patenting activity of U.S. universities and colleges: 1994–2003

Variable	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Institutions awarded patents.....	168	161	179	175	172	181	185	185	192	198
Public.....	97	95	100	103	95	105	109	107	118	119
Private.....	60	58	69	64	67	69	70	71	67	73
Other.....	11	8	10	8	10	7	6	7	7	6
Patents awarded to all institutions.....	1,783	1,878	2,158	2,439	3,160	3,344	3,090	3,208	3,275	3,259
Public.....	1,058	1,180	1,330	1,490	1,816	2,012	1,871	1,874	1,941	1,973
Private.....	668	648	767	872	1,262	1,248	1,163	1,255	1,247	1,191
Top 100 R&D institutions										
Combined top 25 R&D institutions.....	991	1,003	1,207	1,307	1,763	1,863	1,720	1,759	1,730	1,787
Percent.....	56	53	56	54	56	56	56	55	53	55
Combined top 100 R&D institutions.....	1,480	1,577	1,829	2,083	2,754	2,871	2,666	2,736	2,769	2,749
Percent.....	83	84	85	85	87	86	86	85	85	84
Top 100 R&D institutions, 1994–2003										
Public universities										
University of California.....	163	213	266	277	395	437	435	402	431	439
University of Texas.....	98	90	88	81	97	93	90	89	93	96
University of Wisconsin.....	48	48	64	62	83	87	64	72	80	84
University of Michigan.....	28	30	25	53	50	51	69	51	47	63
University of Florida.....	26	31	36	43	52	50	64	51	42	59
State University of New York.....	37	31	37	45	51	54	54	41	55	35
Michigan State University.....	21	15	32	41	59	53	42	39	49	49
University of Minnesota.....	28	25	31	32	43	49	46	38	41	39
University of Washington.....	14	17	26	37	47	47	59	43	41	36
Iowa State University.....	37	37	38	36	53	45	34	29	19	27
Pennsylvania State University.....	16	18	20	19	26	36	37	52	50	52
North Carolina State University.....	32	31	26	24	26	23	24	31	33	44
University of Utah.....	22	17	32	31	37	35	20	43	29	20
University of North Carolina.....	13	21	22	39	29	43	27	36	22	29
Georgia Institute of Technology.....	20	21	22	16	17	34	38	32	36	43
University of Maryland.....	15	21	20	18	24	37	25	33	31	45
University of Pittsburgh.....	10	13	12	17	32	39	38	38	22	22
University of Alabama.....	7	9	13	19	27	37	26	32	29	42
Rutgers University.....	18	20	18	21	26	31	25	21	35	24
University of Illinois.....	14	12	16	17	21	29	26	34	31	39
University of Nebraska.....	16	21	29	24	25	23	27	18	24	18
University of Iowa.....	9	17	11	14	25	30	17	38	25	31
Ohio State University.....	10	17	22	27	24	22	26	20	19	19
Louisiana State University.....	11	14	16	22	38	15	20	34	19	17
Texas A&M University.....	20	16	15	14	21	23	19	25	29	19
University of Massachusetts.....	5	12	14	15	24	52	21	18	15	17
University of Kentucky.....	3	11	14	14	21	29	25	20	32	23
Purdue University.....	11	10	12	24	22	19	11	13	23	22
University of Tennessee.....	5	14	8	13	9	12	16	22	32	8
University of Virginia.....	5	10	13	13	20	15	14	18	9	21
University of South Florida.....	4	6	13	14	18	18	20	15	19	11
Virginia Polytechnic Institute.....	16	6	14	17	16	21	14	9	11	13
University of Georgia.....	7	10	12	11	18	10	18	18	20	12
University of New Mexico.....	9	15	8	13	12	15	23	13	14	6
Oregon Health Sciences University.....	6	10	12	16	13	13	21	13	14	8
City University of New York.....	4	5	9	13	16	15	9	12	14	29
University of Oklahoma.....	7	11	9	16	9	15	17	20	8	10
University of Colorado.....	14	18	16	21	19	8	3	3	3	16
University of Missouri.....	7	10	8	16	13	16	6	12	14	17
Florida State University.....	5	10	8	6	13	9	14	7	20	18
University of Connecticut.....	2	8	9	13	11	17	13	7	13	13
Wayne State University.....	14	9	8	8	10	10	8	12	11	5
University of Cincinnati.....	7	8	7	10	5	5	16	16	12	9
Clemson University.....	10	8	7	9	8	2	4	7	21	17
University of Medicine and Dentistry of										
New Jersey.....	4	5	3	7	15	9	5	14	6	12
University of Kansas.....	2	2	6	3	6	11	5	9	21	9
Washington State University.....	4	4	2	5	5	10	12	13	7	7
University of Hawaii.....	6	7	6	6	6	8	10	4	6	6

Appendix table 5-68

(Page 2 of 2)

U.S. patenting activity of U.S. universities and colleges: 1994–2003

Variable	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
University of Arizona.....	6	4	4	9	8	7	5	3	6	10
Indiana University.....	7	6	8	11	12	5	6	2	2	0
Oregon State University.....	11	6	3	7	8	3	2	8	6	4
Arizona State University.....	3	6	14	8	1	4	4	6	6	5
Colorado State University.....	1	1	6	2	8	5	4	4	11	5
Mississippi State University.....	1	2	5	3	3	5	5	5	9	5
Utah State University.....	2	8	6	1	5	5	4	2	2	4
University of South Carolina.....	3	0	3	4	1	4	1	5	4	8
Medical University of South Carolina.....	1	2	1	1	5	5	6	2	5	3
University of Alaska.....	3	2	3	2	0	0	1	0	2	0
Private universities										
Massachusetts Institute of Technology.....	99	104	119	102	138	142	113	125	135	127
California Institute of Technology.....	46	38	24	46	93	99	103	124	110	139
Stanford University.....	62	54	55	64	79	83	103	84	104	85
Johns Hopkins University.....	23	28	27	48	79	97	72	80	81	70
Cornell University.....	39	36	52	50	65	64	49	61	35	59
University of Pennsylvania.....	37	25	45	55	69	59	31	52	45	29
Columbia University.....	18	18	33	35	55	55	51	58	45	61
Duke University.....	29	20	37	21	30	36	33	57	39	40
Harvard University.....	16	14	32	28	49	41	26	32	48	40
Washington University.....	19	21	18	22	41	50	36	37	20	22
Princeton University.....	7	12	13	16	24	30	28	39	36	31
Rockefeller University.....	13	9	8	20	35	34	42	25	32	13
Yale University.....	13	16	7	20	34	28	29	29	25	28
New York University.....	16	15	19	23	23	27	26	33	21	22
Northwestern University.....	12	18	10	27	35	24	17	33	27	21
University of Chicago.....	14	16	13	22	22	25	16	27	28	27
Emory University.....	5	11	12	12	35	26	20	18	28	22
Carnegie-Mellon University.....	8	10	13	9	26	27	33	12	19	25
Baylor University.....	11	7	18	18	27	22	29	15	18	16
University of Southern California.....	15	6	15	18	16	13	15	20	31	27
Boston University.....	14	14	16	20	19	15	16	18	14	15
Case Western Reserve University.....	8	8	6	9	15	28	18	18	22	14
Vanderbilt University.....	6	9	6	11	16	14	21	20	20	21
Yeshiva University.....	3	3	11	6	14	10	18	19	23	16
University of Rochester.....	10	6	3	5	15	7	12	16	19	18
Dartmouth College.....	4	3	4	2	9	8	11	7	8	9
University of Miami.....	5	5	5	14	3	2	3	3	6	8
Affiliated organizations										
Mayo Foundation.....	7	4	7	6	9	6	11	16	14	21
Associated Universities, Inc.	12	10	11	10	6	3	5	15	7	12
Research Triangle Institute.....	4	5	1	4	6	6	9	18	19	12
	0	1	4	3	3	11	6	14	10	17

NOTES: Data include institutions affiliated with academic institutions, such as university and alumni organizations, federally funded research and development centers, foundations, and university associations. Data for certain institutions are for entire university system and incorporate data from various campuses. Number of patents awarded to public and private institutions are estimated because data for a small number of institutions could not be reconciled. Patents awarded to public and private institutions do not sum to total because patents for other organizations are excluded. Top 100 R&D institutions ranked by sum of their patents from 1994 through 2003.

SOURCES: U.S. Patent and Trademark Office, *Technology Assessment and Forecast Report: U.S. Colleges and Universities, 1969–2003* (2005); and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Appendix table 5-69

Academic patenting and licensing activities: 1991–2003

Activity indicator	1991 (98)	1992 (98)	1993 (117)	1994 (120)	1995 (127)	1996 (131)	1997 (132)	1998 (132)	1999 (139)	2000 (142)	2001 (139)	2002 (156)	2003 (165)
Millions of dollars													
Net royalties	na	na	195.0	217.4	239.1	290.1	391.1	517.3	583.0	1,012.0	753.9	868.9	866.8
Gross royalties.....	130.0	172.4	242.3	265.9	299.1	365.2	482.8	613.6	675.5	1,108.9 ^a	868.3	997.8	1,033.6
Royalties paid to others	na	na	19.5	20.8	25.6	28.6	36.2	36.7	34.5	32.7	41.0	38.8	65.5
Unreimbursed legal fees expended	19.3	22.2	27.8	27.7	34.4	46.5	55.5	59.6	58.0	64.2	73.4	90.1	101.3
New research funding from licenses ^b	na	na	na	106.3	112.5	155.7	136.2	126.9	149.0	184.0	225.7	212.8	212.8
Number													
Invention disclosures received	4,880	5,700	6,598	6,697	7,427	8,119	9,051	9,555	10,052	10,802	11,259	12,638	13,718
New U.S. patent applications filed.....	1,335	1,608	1,993	2,015	2,373	2,734	3,644	4,140	4,871	5,623	5,784	6,509	7,203
U.S. patents granted	na	na	1,307	1,596	1,550	1,776	2,239	2,681	3,079	3,272	3,179	3,109	3,450
Startup companies formed.....	na	na	na	175	169	184	258	279	275	368	402	364	348
Revenue-generating licenses/options.....	2,210	2,809	3,413	3,560	4,272	4,958	5,659	6,006	6,663	7,562	7,715	8,490	11,118
New licenses/options executed.....	1,079	1,461	1,737	2,049	2,142	2,209	2,707	3,078	3,295	3,569	3,300	3,660	3,855
Equity licenses/options	na	na	na	na	99	113	203	210	181	296	328	373	316
Percent ^c													
Sponsored research funds	65	68	75	76	78	81	82	83	82	86	84	87	87
Federal research funds	79	82	85	85	85	89	90	90	90	92	92	93	94

NA = not available

^aIncludes one-time payments of equity cash in and funds received from settlement of patent infringement suit.^bDirectly related to license or option agreement.^cOf national academic total represented by number of institutions reporting.

NOTE: Number of institutions reporting given in parentheses.

SOURCE: Association of University Technology Managers, AUTM Licensing Survey (various years).

Science and Engineering Indicators 2006