

JUMP IN FALL 2008 ENROLLMENTS OF FIRST-TIME, FULL-TIME S&E GRADUATE STUDENTS

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Enrollments of first-time, full-time graduate students in science and engineering (S&E) programs reached a record 108,819 in 2008, representing 20.6% of all graduate enrollments in these fields. The increase, 7.8% over fall 2007, was the largest 1-year increase in the last 10 years (table 1). For the first time since 2003, first-time enrollment in engineering fields grew faster among U.S. citizens and permanent residents than among foreign students with temporary visas (table 2).

Overall, the class of new full-time graduate students entering S&E fields in fall 2008 was the largest since 1973, when the National Science Foundation (NSF) began to collect these data. These findings are from the fall 2008 Survey of Graduate Students and Postdoctorates in Science and Engineering (GSS), cosponsored by the National Science Foundation (NSF) and the National Institutes of Health (NIH).

Graduate Student Enrollment in S&E

Among S&E fields, total graduate student enrollment (full-time and part-time) reached 529,275 in 2008, an increase of 2.5% from 2007 to 2008. Enrollment in the selected health fields included in the GSS fell by 1.1% over the same period (table 1). The remainder of this report primarily highlights data for S&E fields. Further analysis of GSS data on graduate enrollment in selected health fields can be obtained from the NIH.³

Enrollment Status

Growth in graduate S&E enrollment from 2007 to 2008 largely reflected full-time enrollment, which increased by 12,018, or 91.9% of the total growth in S&E enrollment (table 1).⁴ Rapid growth in enrollment of first-time graduate students accounted for nearly two-thirds of this increase.

The number of students entering graduate S&E programs for the first time has been increasing for the last 10 years, with the exception of a 1-year decline from 2003 to 2004 (figure 1).⁵ A key component of this growth has been the variation in first-time enrollment by citizenship. From 2001 to 2003, growth was driven by increasing enrollment among U.S. citizens and permanent residents. The 2003–04 decline was driven by decreasing foreign enrollment. First-time enrollment among students with temporary visas dropped 19% from 2001 to 2004 but has rebounded strongly since then. Recent record-breaking gains reflect increasing first-time enrollment among U.S. citizens and permanent residents and foreign students on temporary visas.

From 2007 to 2008, first-time, full-time enrollment grew more rapidly among foreign students (11.0%) than among U.S. citizens and permanent resident students (5.9%). Among foreign students, first-time, full-time enrollment increased 13.4% in science fields overall and 15.8% in the selected health fields (table 2).



TABLE 1. Graduate enrollment in S&E fields, by enrollment status, sex, citizenship, and race/ethnicity, and in health fields: 1999–2008

Characteristic	1999	2000	2001	2002	2003	2004	2005	2006	2007old ^a	2007new ^a	2008	% change	
												1999–2008	2007–08 ^a
All survey fields	493,256	493,311	509,607	540,404	567,121	574,463	582,226	597,643	607,823	619,499	631,489	28.0	1.9
Science and engineering	411,182	413,536	429,229	454,834	474,645	475,873	478,275	486,287	502,375	516,199	529,275	28.7	2.5
Full time	283,893	291,355	304,021	325,472	339,028	340,529	341,742	349,802	362,976	371,542	383,560	35.1	3.2
First time	75,447	78,332	82,411	86,827	89,331	86,565	89,038	94,413	98,205	100,990	108,819	44.2	7.8
Other	208,446	213,023	221,610	238,645	249,697	253,964	252,704	255,389	264,771	270,552	274,741	31.8	1.5
Part time	127,289	122,181	125,208	129,362	135,617	135,344	136,533	136,485	139,399	144,657	145,715	14.5	0.7
Male	242,786	243,057	251,810	266,217	276,248	274,008	271,967	275,181	284,080	288,926	297,278	22.4	2.9
Female	168,396	170,479	177,419	188,617	198,397	201,865	206,308	211,106	218,295	227,273	231,997	37.8	2.1
U.S. citizens and permanent residents													
Full time	190,076	185,613	188,135	200,097	212,855	217,345	220,842	225,338	233,343	240,319	245,691	29.3	2.2
First time	NA	46,301	48,207	54,625	59,649	58,853	60,157	60,978	62,009	64,284	68,093	–	5.9
Other	NA	139,312	139,928	145,472	153,206	158,492	160,685	164,360	171,334	176,035	177,598	–	0.9
Part time	111,178	105,038	106,473	109,022	114,326	114,677	117,671	118,265	119,799	124,772	124,090	11.6	-0.5
Male	165,823	156,975	157,945	164,891	174,818	176,297	177,900	179,783	184,498	188,642	191,989	15.8	1.8
Female	135,431	133,676	136,663	144,228	152,363	155,725	160,613	163,820	168,644	176,449	177,792	31.3	0.8
White, non-Hispanic	216,750	205,569	206,018	213,135	222,674	224,850	225,776	227,993	232,043	240,204	242,623	11.9	1.0
Asian/Pacific Islander	27,570	24,998	26,494	29,229	31,786	30,645	30,574	30,179	31,279	31,897	31,477	14.2	-1.3
Black, non-Hispanic	20,273	20,834	21,455	22,668	24,174	24,624	25,248	25,664	26,565	27,637	28,680	41.5	3.8
Hispanic	16,520	17,203	17,974	19,634	21,241	22,212	23,387	24,140	25,032	25,739	26,098	58.0	1.4
American Indian/ Alaska Native	1,553	1,602	1,683	1,734	1,879	1,848	1,958	2,112	2,168	2,262	2,618	68.6	15.7
Other or unknown ^b	18,588	20,445	20,984	22,719	25,427	27,843	31,570	33,515	36,055	37,352	38,285	106.0	2.5
Temporary visa holders	109,928	122,885	134,621	145,715	147,464	143,851	139,762	142,684	149,233	151,108	159,494	45.1	5.5
Full time	93,817	105,742	115,886	125,375	126,173	123,184	120,900	124,464	129,633	131,223	137,869	47.0	5.1
First time	NA	32,031	34,204	32,202	29,682	27,712	28,881	33,435	36,196	36,706	40,726	–	11.0
Other	NA	73,711	81,682	93,173	96,491	95,472	92,019	91,029	93,437	94,517	97,143	–	2.8
Part time	16,111	17,143	18,735	20,340	21,291	20,667	18,862	18,220	19,600	19,885	21,625	34.2	8.8
Male	76,963	86,082	93,865	101,326	101,430	97,711	94,067	95,398	99,582	100,284	105,289	36.8	5.0
Female	32,965	36,803	40,756	44,389	46,034	46,140	45,695	47,286	49,651	50,824	54,205	64.4	6.7
Health	82,074	79,775	80,378	85,570	92,476	98,590	103,951	111,356	105,448	103,300	102,214	24.5	-1.1

NA = not available; citizenship of first-time, full-time students was not reported before 2000.

S&E = science and engineering.

^a In 2007 fields were added to survey, some surveyed fields were reclassified, and survey was redesigned to improve reporting. "2007new" shows data as collected in 2007; "2007old" shows data as they would have been collected in prior years. Caution should be used when calculating year-to-year growth and interpreting trends. "% change 2007–08" calculated using 2007new.

^b Includes non-Hispanics reporting more than one race.

SOURCE: National Science Foundation/Division of Science Resources Statistics, NSF-NIH Survey of Graduate Students and Postdoctorates in Science and Engineering.

TABLE 2. First-time, full-time graduate enrollment in science, engineering, and health fields, by field and citizenship: 2006–08

Field	U.S. citizens and permanent residents					Temporary visa holders				
	2006	2007old ^a	2007new ^a	2008	% change 2007–08 ^a	2006	2007old ^a	2007new ^a	2008	% change 2007–08 ^a
All survey fields	81,142	82,127	83,932	87,812	4.6	35,340	38,109	38,517	42,823	11.2
Science and engineering	60,978	62,009	64,284	68,093	5.9	33,435	36,196	36,706	40,726	11.0
Science	49,231	50,005	52,017	54,748	5.3	19,306	20,382	20,708	23,479	13.4
Agricultural sciences	1,764	1,837	1,848	1,996	8.0	442	476	508	601	18.3
Biological sciences	9,946	10,230	10,507	10,870	3.5	3,109	3,255	3,242	3,658	12.8
Communication ^a	ne	ne	1,229	1,489	21.2	ne	ne	302	423	40.1
Computer sciences	3,382	3,077	3,034	3,324	9.6	5,601	6,275	6,222	7,110	14.3
Earth, atmospheric, and ocean sciences	2,289	2,364	2,271	2,306	1.5	506	497	478	598	25.1
Family and consumer science/ human science ^a	ne	ne	456	515	12.9	ne	ne	36	64	77.8
Mathematical sciences	2,522	2,629	2,561	2,548	-0.5	1,820	1,966	1,871	2,043	9.2
Multidisciplinary/ interdisciplinary studies ^a	ne	ne	584	859	47.1	ne	ne	187	281	50.3
Neuroscience ^a	ne	ne	180	259	43.9	ne	ne	93	45	-51.6
Physical sciences	4,045	4,146	4,089	3,988	-2.5	2,581	2,641	2,622	2,904	10.8
Psychology	9,645	9,985	9,861	10,407	5.5	579	639	615	675	9.8
Social sciences	15,638	15,737	15,397	16,187	5.1	4,668	4,633	4,532	5,077	12.0
Engineering	11,747	12,004	12,267	13,345	8.8	14,129	15,814	15,998	17,247	7.8
Health	20,164	20,118	19,648	19,719	0.4	1,905	1,913	1,811	2,097	15.8

ne = not eligible; data were not collected for this field before 2007.

^aIn 2007 fields were added to survey, some surveyed fields were reclassified, and survey was redesigned to improve reporting. "2007new" shows data as collected in 2007; "2007old" shows data as collected in prior years. Science fields "communication," "family and consumer science/human science," and "multidisciplinary/interdisciplinary studies" were new to the survey in 2007; these data may have been reported under other fields before 2007. "Neuroscience" is a separate science field in 2007new; most of these data were reported under health field "neurology" in 2007old and prior years. Caution should be used when calculating year-to-year growth and interpreting trends. "% change 2007–08" calculated using 2007new.

SOURCE: National Science Foundation/Division of Science Resources Statistics, NSF-NIH Survey of Graduate Students and Postdoctorates in Science and Engineering.

These increases were much higher than those for U.S. citizens or permanent resident students in the sciences (5.3%) and the selected health fields (0.4%). In contrast, the 1-year percentage change in engineering for first-time, full-time students was higher for U.S. citizens and permanent residents (8.8%) than for foreign students (7.8%). This is a change from recent years, when much of the growth in engineering at the graduate level was due to foreign students.

Part-time graduate enrollments in S&E grew slightly (0.7%) from 2007 to 2008, however here, too, growth patterns differed substantially by citizenship. Part-time enrollment dropped by 0.5% for U.S. citizens and permanent resident students but increased by 8.8% for foreign students (table 1).

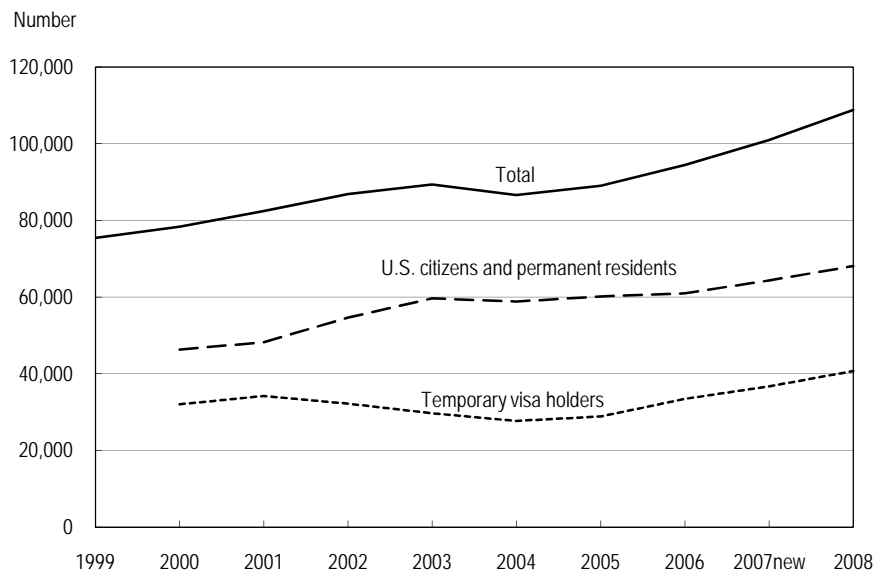
Demographic Characteristics

Women

Graduate enrollment in S&E fields increased slightly more among men (2.9%) than among women (2.1%) from 2007 to 2008 (table 1). This reverses the long-term trend toward relatively greater enrollment gains by women. Women's share of graduate enrollment in S&E fields fell to 43.8% in 2008 after increasing each year from 41.0% in 1999 to 44.0% in 2007.

The lower growth rate in women's enrollment from 2007 to 2008 was found among U.S. citizens and permanent resident students but not among foreign students. The rate of enrollment grew faster for foreign

FIGURE 1. First-time, full-time graduate enrollment in science and engineering fields, by citizenship: 1999–2008



NOTES: In 2007 fields were added to survey; some surveyed fields were reclassified, and survey was redesigned to improve reporting. "2007new" shows data as collected in 2007. Citizenship of first-time, full-time students was not reported before 2000.

SOURCE: National Science Foundation/Division of Science Resources Statistics, NSF-NIH Survey of Graduate Students and Postdoctorates in Science and Engineering.

women (6.7%) than for foreign men (5.0%) from 2007 to 2008. Among U.S. citizens and permanent residents, graduate enrollment in S&E fields grew more slowly, with the number of female graduate students increasing by 0.8% and male graduate students increasing by 1.8%. In 2008 women made up 48.1% of U.S. citizen and permanent resident enrollments and 34% of foreign enrollments in S&E programs.

Race and Ethnicity

Continuing a long trend, the S&E graduate student population is becoming more racially and ethnically diverse. Among U.S. citizens and permanent resident students enrolled in S&E in graduate schools, racial/ethnic minorities grew slightly faster (1.5% overall) than did non-Hispanic whites (1.0%) from 2007 to 2008. During this period, enrollment increased among non-Hispanic blacks (3.8%), American Indian/Alaska Natives (15.7%), and Hispanics (1.4%) and declined among Asian/Pacific Islanders (-1.3%).

Field of Study

At the aggregate level, enrollment increased by 4.7% in engineering and 1.8% in science from 2007 to 2008 (table 3). Noteworthy is the field of biomedical engineering, which has experienced the largest percentage increase of any field over the last decade (139.1%), more than doubling graduate enrollment from 1999 to 2008.

Postdoctoral Appointees in S&E

The GSS also collects information about postdoctoral appointees (postdocs) who work at U.S. academic institutions (and their affiliates, such as research centers and hospitals) in S&E and selected health fields. From 2007 to 2008, the number of postdocs in S&E fields increased 5.5% and the number of postdocs in selected health fields increased 9.2% (table 4). These 1-year increases indicate growth in employment of postdocs in the academic sector, especially when viewed against

TABLE 3. Graduate enrollment in science, engineering, and health fields, by field: 1999–2008

Field	1999	2000	2001	2002	2003	2004	2005	2006	2007old ^a	2007new ^a	2008	% change	
												1999–2008	2007–08 ^a
All survey fields	493,256	493,311	509,607	540,404	567,121	574,463	582,226	597,643	607,823	619,499	631,489	28.0	1.9
Science and engineering	411,182	413,536	429,229	454,834	474,645	475,873	478,275	486,287	502,375	516,199	529,275	28.7	2.5
Science	309,491	309,424	319,736	335,166	347,268	352,307	357,710	363,246	372,120	384,523	391,419	26.5	1.8
Agricultural sciences	12,312	12,023	12,235	12,698	13,197	13,445	13,123	13,016	13,222	13,528	14,153	15.0	4.6
Biological sciences	56,959	56,282	57,639	61,088	64,701	66,565	68,479	69,941	71,663	71,932	72,666	27.6	1.0
Communication ^a	ne	ne	ne	ne	ne	ne	ne	ne	ne	7,303	8,444	–	15.6
Computer sciences	42,478	47,350	52,196	55,269	53,696	50,016	47,978	47,653	48,959	48,246	49,553	16.7	2.7
Earth, atmospheric, and ocean sciences	14,083	13,941	13,841	14,240	14,620	15,131	14,836	14,920	14,675	14,100	14,389	2.2	2.0
Family and consumer science/human science ^a	ne	ne	ne	ne	ne	ne	ne	ne	ne	2,780	3,549	–	27.7
Mathematical sciences	16,257	15,650	16,651	18,163	19,465	19,931	20,210	20,815	21,335	20,975	21,400	31.6	2.0
Multidisciplinary/interdisciplinary studies ^a	ne	ne	ne	ne	ne	ne	ne	ne	ne	4,484	5,559	–	24.0
Neuroscience ^a	ne	ne	ne	ne	ne	ne	ne	ne	ne	1,584	2,012	–	27.0
Physical sciences	30,691	30,385	31,038	32,341	34,298	35,761	36,375	36,901	37,111	36,824	37,319	21.6	1.3
Psychology	51,727	50,466	50,454	51,152	52,162	54,126	57,282	57,653	60,284	59,617	58,991	14.0	-1.1
Social sciences	84,984	83,327	85,682	90,215	95,129	97,332	99,427	102,347	104,871	103,150	103,384	21.7	0.2
Agricultural economics	2,014	2,079	2,161	2,187	2,318	2,195	2,127	2,158	2,126	1,989	2,132	5.9	7.2
Anthropology	7,633	7,626	7,491	7,481	7,789	7,826	7,750	8,150	8,099	8,129	8,333	9.2	2.5
Economics	10,562	10,748	11,408	12,009	12,316	12,318	11,805	12,132	12,328	12,597	12,971	22.8	3.0
Geography	4,250	4,036	4,304	4,383	4,721	4,809	4,800	4,750	4,660	4,660	4,745	11.6	1.8
History and philosophy of science	557	532	571	663	737	994	965	968	1,119	1,054	1,177	111.3	11.7
Linguistics	2,799	2,674	2,744	2,875	3,028	2,941	3,187	3,074	3,076	2,879	3,095	10.6	7.5
Political science	31,372	31,131	31,805	34,934	36,880	39,023	40,780	41,784	41,854	41,349	40,871	30.3	-1.2
Sociology	8,966	8,652	8,812	8,946	9,127	8,874	9,018	9,035	9,734	9,642	10,002	11.6	3.7
Sociology/anthropology	741	745	808	719	773	839	848	837	831	682	653	-11.9	-4.3
Other social sciences	16,090	15,104	15,578	16,018	17,440	17,513	18,147	19,459	21,044	20,169	19,405	20.6	-3.8
Engineering	101,691	104,112	109,493	119,668	127,377	123,566	120,565	123,041	130,255	131,676	137,856	35.6	4.7
Aerospace engineering	3,349	3,407	3,451	3,685	4,048	4,089	4,170	4,482	4,616	4,616	4,902	46.4	6.2
Architecture ^a	na	na	na	na	na	na	na	na	na	4,601	5,905	–	28.3
Biomedical engineering	3,069	3,197	3,599	4,338	5,301	5,807	6,067	6,482	6,881	6,904	7,339	139.1	6.3
Chemical engineering	6,883	7,056	6,913	7,414	7,516	7,452	7,173	7,261	7,383	7,584	7,892	14.7	4.1
Civil engineering ^a	16,226	16,451	16,665	17,713	18,890	18,561	18,114	17,802	19,867	16,071	16,931	4.3	5.4
Electrical engineering	31,822	33,611	36,100	39,948	41,763	38,995	37,450	38,265	40,207	40,588	41,164	29.4	1.4
Industrial engineering	11,803	12,119	12,940	14,033	14,313	13,852	13,650	13,829	14,290	14,474	15,692	32.9	8.4
Mechanical engineering	14,956	15,235	15,852	17,139	18,393	17,852	17,373	17,919	18,366	18,347	19,585	31.0	6.7
Metallurgical/materials engineering	4,481	4,377	4,721	4,992	5,131	5,059	5,160	5,268	5,365	5,314	5,539	23.6	4.2
Other engineering	9,102	8,659	9,252	10,406	12,022	11,899	11,408	11,733	13,280	13,177	12,907	41.8	-2.0
Health	82,074	79,775	80,378	85,570	92,476	98,590	103,951	111,356	105,448	103,300	102,214	24.5	-1.1

na = not applicable; data were not collected at this level of detail. ne = not eligible; data were not collected for this field before 2007.

^a In 2007 fields were added to survey, some surveyed fields were reclassified, and survey was redesigned to improve reporting. "2007new" shows data as collected in 2007; "2007old" shows data as they would have been collected in prior years. Science fields "communication," "family and consumer science/human science," and "multidisciplinary/interdisciplinary studies" were new to the survey in 2007; these data may have been reported under other fields before 2007. "Neuroscience" is a separate science field in 2007new; most of these data were reported under health field "neurology" in 2007old and prior years. "Architecture" is a separate engineering field in 2007new; most of these data were reported under "civil engineering" in 2007old and prior years. Caution should be used when calculating year-to-year growth and interpreting trends. "% change 2007–08" calculated using 2007new.

SOURCE: National Science Foundation/Division of Science Resources Statistics, NSF-NIH Survey of Graduate Students and Postdoctorates in Science and Engineering.

TABLE 4. Postdoctoral appointees in S&E fields, by sex, citizenship, and field, and in health fields: 1999–2008

Characteristic	1999	2000	2001	2002	2003	2004	2005	2006	2007old ^a	2007new ^a	2008	% change	
												1999–2008	2007–08 ^a
All survey fields	40,800	43,115	43,311	45,034	46,728	47,240	48,555	49,343	50,712	50,840	54,164	32.8	6.5
Science and engineering	28,980	30,224	30,196	31,937	33,666	34,065	34,456	34,887	35,894	36,223	38,203	31.8	5.5
Male	20,272	21,296	20,941	21,807	22,882	23,080	23,227	23,361	24,412	24,631	25,119	23.9	2.0
Female	8,708	8,928	9,255	10,130	10,784	10,985	11,229	11,526	11,482	11,592	13,084	50.3	12.9
U.S. citizens and permanent residents	12,725	12,627	12,073	13,524	13,542	13,969	14,078	14,111	14,903	15,107	16,274	27.9	7.7
Temporary visa holders	16,255	17,597	18,123	18,413	20,124	20,096	20,378	20,776	20,991	21,116	21,929	34.9	3.9
Science	25,784	26,911	27,044	28,371	29,856	30,116	30,290	30,245	30,986	31,281	32,741	27.0	4.7
Agricultural sciences	750	822	833	963	1,054	959	1,007	927	948	985	1,147	52.9	16.4
Biological sciences	16,097	16,734	17,032	17,640	18,625	18,716	18,747	18,807	19,218	19,109	19,827	23.2	3.8
Communication ^a	ne	ne	ne	ne	ne	ne	ne	ne	ne	30	32	–	6.7
Computer sciences	334	344	336	356	355	384	406	467	516	456	493	47.6	8.1
Earth, atmospheric, and ocean sciences	925	1,155	1,049	1,129	1,182	1,263	1,364	1,495	1,322	1,250	1,339	44.8	7.1
Family and consumer science/human science ^a	ne	ne	ne	ne	ne	ne	ne	ne	ne	8	19	–	137.5
Mathematical sciences	351	385	353	395	449	468	500	579	621	624	723	106.0	15.9
Multidisciplinary/interdisciplinary studies ^a	ne	ne	ne	ne	ne	ne	ne	ne	ne	244	348	–	42.6
Neuroscience ^a	ne	ne	ne	ne	ne	ne	ne	ne	ne	285	343	–	20.4
Physical sciences	6,157	6,270	6,223	6,619	6,829	7,059	7,011	6,703	6,760	6,719	6,885	11.8	2.5
Psychology	716	730	809	815	960	902	884	873	1,106	1,088	1,077	50.4	-1.0
Social sciences	454	471	409	454	402	365	371	394	495	483	508	11.9	5.2
Engineering	3,196	3,313	3,152	3,566	3,810	3,949	4,166	4,642	4,908	4,942	5,462	70.9	10.5
Aerospace engineering	128	111	128	140	141	141	153	165	178	178	154	20.3	-13.5
Architecture ^a	na	na	na	na	na	na	na	na	na	5	11	–	120.0
Biomedical engineering	242	220	262	284	388	425	477	591	640	640	710	193.4	10.9
Chemical engineering	671	703	574	758	686	689	702	735	758	790	880	31.1	11.4
Civil engineering ^a	299	295	268	342	300	313	384	458	419	417	465	55.5	11.5
Electrical engineering	548	525	436	613	646	654	689	721	885	884	987	80.1	11.7
Industrial engineering	27	48	21	43	45	50	51	51	73	71	115	325.9	62.0
Mechanical engineering	476	480	501	441	543	514	562	644	725	722	784	64.7	8.6
Metallurgical/materials engineering	421	507	479	507	539	567	578	571	555	564	605	43.7	7.3
Other engineering	384	424	483	438	522	596	570	706	675	671	751	95.6	11.9
Health	11,820	12,891	13,115	13,097	13,062	13,175	14,099	14,456	14,818	14,617	15,961	35.0	9.2

na = not applicable; data were not collected at this level of detail. ne = not eligible; data were not collected for this field before 2007.

S&E = science and engineering.

^a In 2007 fields were added to survey, some surveyed fields were reclassified, and survey was redesigned to improve reporting. "2007new" shows data as collected in 2007; "2007old" shows data as they would have been collected in prior years. Science fields "communication," "family and consumer science/human science," and "multidisciplinary/interdisciplinary studies" were new to the survey in 2007; these data may have been reported under other fields before 2007. "Neuroscience" is a separate science field in 2007new; most of these data were reported under health field "neurology" in 2007old and prior years. "Architecture" is a separate engineering field in 2007new; most of these data were reported under "civil engineering" in 2007old and prior years. Caution should be used when calculating year-to-year growth and interpreting trends. "% change 2007–08" calculated using 2007new.

SOURCE: National Science Foundation/Division of Science Resources Statistics, NSF-NIH Survey of Graduate Students and Postdoctorates in Science and Engineering.

their respective 10-year growth rates (1999–2008) of 31.8% in S&E and 35.0% in selected health fields.

Field of Study

Although most S&E postdocs work in science fields (85.7 % in 2008), the proportion has declined each year since its peak in 2001 (89.6%), reflecting increasing numbers of postdocs working in engineering. The number of engineering postdocs increased 70.9% from 1999 to 2008, compared with 27.0% for science postdocs (table 4). The number of postdocs in science increased by 4.7% over 2007, whereas the number in engineering increased by 10.5%.

In 2008, 60.6% of postdocs in science fields worked in the biological sciences. No similar concentration exists among engineering fields. The three engineering fields that employed the most postdocs in 2008 were electrical engineering, chemical engineering, and mechanical engineering (table 4). Postdocs in biomedical engineering, as with graduate enrollment, grew very rapidly in this period, nearly tripling from 242 in 1999 to 710 in 2008.

Demographic Characteristics

The number of female postdocs in S&E fields was 4,376 higher in 2008 than it was in 1999; male postdocs were higher by 4,847 (table 4). Although the numerical increases were similar, the gains for women represent much greater percentage growth: 50.3% from 1999 to 2008, more than double the 23.9% growth among male postdocs in that period.

The number of female postdocs working in S&E fields increased 12.9% over 2007 compared with a 2.0% increase among male postdocs. The difference in the proportion of postdocs who are male and female has lessened. In 1999, women comprised 30.0% of S&E postdocs; in 2008, women comprised 34.2% of S&E postdocs.

Although increases in foreign postdocs have driven much of the growth in S&E postdocs, for the last 2 years growth among U.S. citizens and permanent residents has outpaced that among temporary visa holders. The 7.7% increase in U.S. citizen and permanent resident postdocs from 2007 to 2008 represents the largest 1-year change since 2002 (when this group increased by 12.0% over 2001 numbers).

Survey Information and Data Availability

The 2008 GSS collected data from 13,166 organizational units (departments, programs, affiliated research centers, and health-care facilities) at 580 institutions of higher education and their affiliates in the United States, Puerto Rico, and Guam. The institutional response rate was 98.8%.

This publication provides the first release of data from the fall 2008 NSF-NIH Survey of Graduate Students and Postdoctorates in Science and Engineering. The full set of detailed statistical tables from this survey will be available in the forthcoming report *Graduate Students and Postdoctorates in Science and Engineering: Fall 2008* at <http://www.nsf.gov/statistics/gradpostdoc/>. Individual detailed tables from the 2008 survey may be requested in advance of the full report. For further information, or for details on the survey methodology used, please contact Susan T. Hill.¹

The 2008 GSS data are available in public use format at http://www.nsf.gov/statistics/srvygradpostdoc/pub_data.cfm and from the WebCASPAR data system (<http://webcaspar.nsf.gov>).

Notes

1. Susan T. Hill, Human Resources Statistics Program, Division of Science Resources Statistics, National Science Foundation, 4201 Wilson Boulevard, Suite 965, Arlington, VA 22230 (sthill@nsf.gov, 703-292-7790).
2. Peter Einaudi, research analyst, RTI International, 3040 Cornwallis Road, P.O. Box 12194, Research Triangle Park, NC 27709-2194.
3. The GSS collects data on health fields selected by the NIH. These fields comprise about one-third of all health fields in the U.S. Department of Education Classification of Instructional Programs (CIP) taxonomy. The majority of those not included are practitioner-oriented fields that do not meet the research-based criteria for GSS eligibility. Additional information on trends seen within selected health fields can be found at <http://report.nih.gov>.
4. Full-time enrollment is defined according to the institution's policies and definition. First-time graduate students are those enrolled for graduate credit for the

first time as of fall 2008 at the institution at which they are pursuing a degree.

5. Due to methodological changes in 2007, the data collected in 2007 and 2008 are not strictly comparable to those collected prior to 2007. As a result, care should be used when assessing trends within the GSS data. In this InfoBrief, the “2007new” column reports the data as collected in 2007 and the “2007old” column pro-

vides an estimate of the 2007 data as they would have been collected in 2006. Thus, annual trends should be assessed by comparing 2006 to 2007old and 2007new to 2008. The percentage change 1999–2008 column is not adjusted and thus contains some variability due to the change in survey. Please see appendix A, “Technical Notes,” in *Graduate Students and Postdoctorates in Science and Engineering: Fall 2007* (NSF 10-307) for a more detailed discussion of these changes.

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