

The 1986-1987 Taulbee Survey Report

**The Computing Research Board's Survey
on the
Production and Employment of Ph.D.'s and Faculty in
Computer Science and Engineering**

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The 1986-87 Taulbee Survey Report⁰
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0. Introduction

This report describes the results of a survey completed in December 1987 on the production and employment of Ph.D.'s and faculty of Ph.D.-granting Computer Science/Engineering Departments during the academic year 1986-87². All 123 Computer Science (CS) departments (111 U.S. and 12 Canadian) participated. In addition, for the first time, 22 departments offering the Ph.D. in Computer Engineering (CE) were included³. Throughout this report, CE statistics are reported separately so that comparisons with previous years can be made for CS, but the intention is to merge all statistics for CS and CE after several years. Some highlights from the survey are:

- The 123 CS departments produced 466 Ph.D.'s, an increase of 13% over the previous year; 255 were Americans, 19 Canadians, and 181 foreign (11 were unknown). Of the 466, 232 went to academia, 151 to industry, 8 to government, and 34 overseas; 4 were self-employed (37 were unknown).
- The 123 CS departments expect to produce 707 Ph.D.'s next year. (This is far too optimistic; we expect, instead, another increase of 13% to 525.)
- 1008 students passed their Ph.D. qualifying exam in CS departments, an increase of 17% over 1985-86.
- The 123 CS departments have 2269 faculty members, an increase of almost 11%: 857 Assistant, 630 Associate, and 782 Full Professors.
- The 123 CS departments reported hiring 238 faculty and losing 179 (to retirement, death, other universities, graduate school, and non-academic positions).
- The 123 CS departments want to grow from 2325 faculty members (including visitors and non-tenure-track faculty) to 3133 in five years, an increase of 35%, at an average rate of 1.3 per department per year. (Last year, they wanted a growth of 1.4 per department but grew 1 per department.)

One can draw some conclusions and make some predictions. First, the growth of 13% in CS Ph.D. production, although less than the 20% increase of 1985-86, is encouraging. Because of the increase in Ph.D. qualifying exam passage, this growth is expected to continue, and we can expect 600 Ph.D.'s per year by 1991.

The field continues to be far too young and inexperienced, a problem that only time can solve. CS continues to have more assistant professors than full professors, which puts an added burden on the older people. In fact, the

⁰ The title of the survey honors Orrin E. Taulbee of the University of Pittsburgh, who conducted these surveys for the Computer Science Board annually from 1970 to 1984.

¹ The 145 departments completing the questionnaire deserve a round of applause.

² 123 departments reported on an academic-year basis and 13 on a 1987 calendar-year basis; 9 neglected to indicate the system used. Departments usually report on the same basis from year to year, so the difference has no effect when viewing changes in survey data.

³ The Forsythe list—the list of all departments in the U.S. and Canada that grant a Ph.D. in CS or CE—is maintained by Terry Walker, a member of the Computing Research Board. This is first year that the CE departments have been included.

ratios of assistant and associate professors to full professors has not changed appreciably in three years. No other field, as far as we know, has this problem—in fact, most scientific fields are 80 to 90 percent tenured in many universities. The CE departments have more full professors than assistant professors, mainly because many are older EE departments offering CE degrees.

The increase in Ph.D. production over last year is reportedly made up entirely of U.S. citizens, and the percentage of CS Ph.D.'s given to foreign students fell from 46 to 40. Whether this is a trend remains to be seen.

Last year, 118 Ph.D.-granting CS departments were identified; this year, 123. The growth in the number of such departments is slowing down and, we believe, will soon essentially halt. The Computing Research Board was able to identify 33 departments giving a Ph.D. in CE (but not in CS), and they were asked to participate in this survey. Whether there will be more growth in CE departments is not known.

Some methodological comments

Questionnaires were sent to 123 CS Ph.D.-granting departments and 33 CE Ph.D.-granting departments in late October 1987. (The titles of the departments appear in Table 0).

Table 0. Titles of Departments	
Number of departments	Title
91	Computer Science(s)
17	Electrical and Computer Engineering
11	Computer and Information Science(s)
6	Electrical Engineering and Computer Science
6	Computer Science and Engineering
2	Computer Engineering
2	Electrical Engineering
2	Information and Computer Science
1	Advanced Computer Studies
1	Applied Sciences
1	Computational Science
1	Computer Science and Electrical Engineering
1	Computer Engineering and Information Science
1	Computer Engineering and Science
1	Computing Science
1	Mathematical Sciences
(Instead of 'Department', the terms 'Center', 'Division', 'Program', and 'School' were each used at least once.)	

With the help of 268 phone calls, all 123 CS departments and 22 of the 33 CE departments had completed the questionnaire by 10 December 1987. Thus, the figures in this report are complete for CS. We hope to have a better response from the CE departments in next year's survey. The accuracy of this report depends, of course, on the accuracy with which the questionnaires were filled out by the individual departments. The new electrical engineering departments giving a Ph.D. in CE had a more difficult time completing the questionnaire, for they were asked to give information only on the CE part of their departments, and the required information was difficult to extract.

As with most surveys, a small part of the data in the survey was not filled in or obviously was incorrectly entered. We took the liberty to adjust some figures and estimate a few others—for example, in a few cases, with 142 or 143 out of 145 departments reporting a figure in a field, we estimated that field for the others. Our goal was to make this report consistent, clear, and simple, without modifying the overall results in any way.

In some places, we analyze the data for the higher ranked departments as compared to the lower ranked and unranked ones, using for ranking the 1980 survey done under the auspices of the National Research Council [0]. (We also included the two largest Canadian universities somewhere within the top 20.) Survey [0] is now eight years old, and many changes have occurred in CS since then (e.g. the emergence of over 60 Ph.D.-granting CS

departments); nevertheless, this breakdown still provides some useful comparisons.

From time to time within this report, in order to draw meaningful conclusions regarding growth of the field (using older surveys), we compare figures for the CS departments only, keeping figures for CE separate. Throughout this report, figures for 1984-85 are taken from [1], for 1985-86 from [2], and for 1970-84 from [3]. The figures for 1970-84 may not be accurate because not all departments completed questionnaires in those days. Finally, for comparisons with graduate study in mathematics, figures are taken from [4].

1. Data on Students

Ph.D. production and its growth

The field of CS produced 466 Ph.D.'s in 1986-87, an increase of 54 (13%) over 1985-86 and an increase of 236 (103%) over 1980. The figures on Ph.D. production for CS and CE, as well as for qualifying-exam passage and sizes of incoming classes, are given in Table 1. In Table 1, in the column headed 'No. of depts', the first number is the number of departments reporting and the second the total number of known Ph.D.-granting departments.

	Year	No. of depts	Ph.D.'s produced	average per dept	Qualifying exam passage	average per dept	New Ph.D. students	average per dept
CS	1980-81		230					
CS	1984-85	103 (109)	326	3.2	755	8.21	1177	12
CS	1985-86	117 (118)	412	3.5	858	7.30	1170	10
CS	1986-87	123 (123)	466	3.8	1008	8.19	1430	12
CS-CE	1986-87	145 (156)	559	3.9	1168	8.05	1621	11
Math	1986-87	259 (317)	845	3.3				

CS produces more Ph.D.'s per department than math does at this point, although CS has 18.5 faculty per department and math has 30.2. Further, let us consider only associate and full professors, as the producers of most of the Ph.D.'s. In CS, the average CS associate and full professor produced 0.33 Ph.D.'s in 1986-87; the average math associate and full professor, 0.18.

As mentioned earlier, CS Ph.D.-production increased 13% this year and 20% last year. Future growth is expected. Indeed, the 123 departments project 707 Ph.D.'s in 1987-88—a 52% increase! A more realistic estimate is another 13%, to 525. As some evidence for our estimate, in the last survey the departments optimistically predicted 652 Ph.D.'s, we predicted 480, and 466 were produced.

Future increases in Ph.D. production are a matter of concern to the field. Estimates of the annual need for new Ph.D.'s range from 600 to over 1,000, and the field is growing steadily to meet the need. However, growth in Ph.D. production requires a commensurate growth in funding for research. Because of this interest in Ph.D. production, we go into more detail.

In 1986-87, an average of 3.9 CS-CE Ph.D.'s were produced per department, (see Table 2) with 27 departments producing 0, 20 producing 1, 23 producing 2, and 25 producing 3. Thus, 95 departments produced less and 50 departments more than the average. The 50 that produced more than the average—roughly one third of the departments—produced 75% of the Ph.D.'s.

The over-average group of 50 expects to increase its Ph.D. production in one year far less (by 115, or 28%) than the under-average group (by 164, or 116%). The expected growth has remained about the same for the over-average group (24% in both 1985-86 and 1984-85). But the predicted one-year growth by the under-average group was 167% in 1984-85, 164% in 1985-86, and 116% in 1986-87.

In an effort to find different expected-growth patterns, the data for the groups of departments in various rankings (according to [0]) is presented in Table 2.

Twenty-two CS-CE departments had 15 or more students passing the qualifying examination; they accounted for 55% of the students passing the exam.

Rank	Ph.D.'s produced	average per dept	Ph.D.'s next yr	average per dept	Qualifying exam passage	average per dept	New Ph.D. students	average per dept
CS (all)	466	3.8	707	5.8	1008	8.3	1430	11.8
CS 1-12	166	13.8	196	16.3	255	21.2	287	23.9
CS 13-24	66	5.5	123	10.3	142	11.8	207	17.3
CS 25-36	66	5.5	103	8.6	143	11.9	176	14.7
Other CS	168	1.9	285	3.3	468	5.5	760	8.9
CE	93	4.2	131	6.0	160	7.3	191	8.7

Sex and minority status of the Ph.D.'s.

Table 3 gives the figures on Ph.D.'s awarded to minority students and females. The figures are rather depressing from the standpoint of minority and female representation in the field. Table 4 shows the statistics since 1970, with the data before 1984-85 being taken from [3]. Throughout the 1980's the percentage of Ph.D.'s who are women has stayed relatively constant at about 11%, blacks at 1%, and Hispanics at 2%.

Ph.D. Minority Status	CS			CE			CS-CE		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
White, not of hispanic origin	263	39	302	46	2	48	309	41	350
Black, not of hispanic origin	1	0	1	2	0	2	3	0	3
Hispanic	8	0	8	1	0	1	9	0	9
Other	143	12	154	41	1	42	184	13	196
Total	415	51	466	90	3	93	505	54	559

Year	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	84-85	85-86	86-87
Total	112	124	206	208	203	256	246	208	223	248	230	235	244	256	274	326	412	466
Female	1	4	12	7	6	21	14	14	19	24	28	26	27	31	29	32	50	51
Percent	1	3	6	3	3	8	6	7	9	10	12	11	11	12	10	10	12	11
Black	1	1	2	2	2	1	0	0	2	1	0	0	1	2	3	3	6	1
Percent	1	1	1	1	1	0	0	0	1	0	0	0	0	1	1	1	1	0
Hispanic	No information					No information					No information					7	6	8
Percent																2	1	2
Foreign	22	21	39	41	46	68	57	68	51	65	82	79	83	86	87	122	184	181
Percent	20	17	19	20	23	27	23	33	23	26	36	33	34	34	32	37	45	40

Citizenship of the Ph.D.'s

The number of Ph.D.'s given to foreigners remained essentially the same (in CS, 184 last year and 181 this year). Hence, the increase in Ph.D. production was all in American and Canadian citizens, and the percentage of Ph.D.'s to foreigners dropped from 46% to 40%. Figures for citizenship of the Ph.D.'s are given in Table 5. Table 4 contains the figures for foreigners from 1970 to 1987.

	U.S.	Canadian	Foreign	Percent foreign	Unknown
CS	255	19	181	40%	11
CE	41	0	46	53%	6
CS-CE	296	19	227	42%	17

Employment of the Ph.D.'s

As shown in Table 6, in CS, 35% of the Ph.D.'s produced took positions in the U.S. or Canada outside academia, 54% took faculty positions in the U.S. or Canada, 8% took positions in other countries, and 8% were unknown. There is little change from last year, when the figures were 42%, 48%, and 9%.

	Number of Ph.D.'s	Self-employed	Academia			Industry	Government	Outside U.S. and Canada	Unknown
			Ph.D. dept	not Ph.D. dept	not CS or CE				
CS	466	4	177	41	14	151	8	34	37
CS-CE	559	4	194	44	19	183	18	39	58

Undergraduate and Masters degrees

Many universities and colleges have undergraduate and/or masters programs but do not award the Ph.D., so the data given below says little about the field of computer science as a whole.

Table 7 gives statistics on undergraduate and Master's degrees in Ph.D. departments, with columns labeled '87-88' representing expectations. CS undergraduate degrees dropped 4% this year, and the departments expect another 3% decrease next year.

Non-Ph.D. Degrees, Ph.D. departments only		Undergraduate				Master's			
		84-85	85-86	86-87	87-88	84-85	85-86	86-87	87-88
CS	Number of degrees	10422	10947	10540	10247	2889	3720	3614	3751
	Number of depts. responding	96	116	121	120	101	116	123	122
	Average per dept.	109	94	87	85	29	32	29	31
CE	Number of degrees			2103	2147			731	787
	Number of depts. responding			22	22			22	22
	Average per dept.			96	98			33	36
CS-CE	Number of degrees			12643	12394			4345	4538
	Number of depts. responding			143	142			145	144
	Average per dept.			88	87			30	32

New graduate students in Fall 1987

Table 8 gives enrollment figures for new students in Fall 1987. In the table, 'Ph.D. program' stands for the number of new graduate students in Ph.D. programs, regardless of whether they intend to earn a Masters degree first. The number of new graduate students in CS is down slightly from last year (from 3722 to 3644), but the number of new graduate students in a CS Ph.D.-program rose from 1170 to 1430 (22%), another reason for expecting future growth in Ph.D. production.

The data for part-time Masters students needs some explanation. 50 departments had zero part-timers and 97 departments had 5 or fewer. For these departments, the part-time masters program may be inconsequential

—perhaps just a small employee degree program of the University. On the other hand, the two largest part-time Masters programs had 205 and 152 new part-timers, respectively. The last column gives figures only for departments with between 6 and 50 new part-time masters students.

Table 9 gives the number of new Ph.D. students in CS departments this year and last, with departments grouped by rank.

New Graduate Students		Total new graduate students	With CS degrees	Ph.D. program	Master's only program	Part-time Masters students	Part-time Master's in departments with 6-50
CS	Total	3644	1621	1430	2083	1078	495
	Depts. responding	121	117	121	121	120	33
	Average per dept.	30	14	12	17	9	15
CE	Total	952	128	191	556	481	75
	Depts. responding	22	22	22	22	22	5
	Average per dept.	43	6	9	25	22	15
CS-CE	Total	4596	1749	1621	2639	1559	570
	Depts. responding	143	139	143	143	142	38
	Average per dept.	32	13	11	18	11	15

Departments	Number of departments	Total			Average		
		1985	1986	1987	1985	1986	1987
Ranked 1-12	12	349	290	287	29	24	24
Ranked 13-24	12	219	176	207	18	15	17
Ranked 25-36	12	144	165	176	12	14	15
All other	62,81,85	465	678	760	8	7	9

2. Faculty

Table 10 contains statistics on departmental faculty in September 1987. In the Table, all figures are in terms of 'Full-time equivalents'. For example, two half-time appointments count as one position.

CS saw little change over last year in the proportions of faculty at the three levels. CS remains a relatively young field, with fewer full professors (6.4) than assistant professors (7) per department. The top 25 departments have about the same number (10 and 9.9) of full professors and assistant professors per department.

Faculty	All CS-CE Depts.		123 CS Depts.		Top 25 CS Depts.		Other 98 CS Dept	
	Total	Average	Total	Average	Total	Average	Total	Average
Tenure-track faculty	2702	18.6	2269	18.4	649	26.0	1620	16.5
Assistant professor	968	6.7	857	7.0	247	9.9	610	6.2
Associate professor	765	5.3	630	5.1	153	6.1	477	4.9
Full professor	969	6.7	782	6.4	249	10.0	533	5.4
Non-teaching research faculty	140	1.0	126	1.0	69	2.8	57	0.6
Postdocs	96	0.7	81	0.7	51	2.0	30	0.3
Non-tenure-track teachers	473	3.3	390	3.2	95	3.8	295	3.0
Other faculty (e.g. visitors)	281	1.9	201	1.6	60	2.4	141	1.4

Hiring for 1987-88

The CS-CE departments reported hiring 275 new faculty —1.9 per department. CS departments in the U.S. hired 211 —again, 1.9 per department. Salaries were reported for new Ph.D.'s hired for Fall 1987 by 83 U.S. CS-CE departments, 69 U.S. CS departments, and 7 Canadian departments. Table 11 gives this salary information. The data for the Canadian universities are shown separately in the table, in Canadian dollars. Canadian salaries are on a 12-month scale, the Canadian and U.S. dollars are different, and there are differences in the amount of consulting that typically can be performed.

The average U.S. salary for a new Ph.D. has increased from \$36,668 in Fall 1985 to \$38,957 in Fall 1986 (6.2%) to \$40,885 in Fall 1987 (4.9%).

More information is included in Table 12, which gives the number of departments averaging a salary in each \$1,000 range for Fall 1987 and two previous years (numbers are rounded and presented in thousands of dollars).

The departments reported hiring 29 faculty with Ph.D.'s earned in 1982 or later in a field other than computing science/engineering. The fields were: mathematics (3), electrical engineering (21), sociology, philosophy, physics (2), and management sciences. Part of the increase of new faculty with electrical engineering degrees is due to the inclusion of the CE departments in this year's survey.

	All U.S. CS-CE depts.	All U.S. CS depts.	Top 24 U.S. CS depts.	Other 99 U.S. CS depts.	12 Canadian CS depts.
Total hired	248	211	65	146	27
Number of departments reporting salaries	83	69	18	51	7
Minimum	\$35,000	\$35,000	\$37,333	\$35,000	\$38,500
Average (of the averages)	\$40,885	\$40,840	\$41,540	\$40,592	\$42,440
Maximum	\$52,100	\$48,000	\$47,000	\$48,000	\$48,578

Salary (in thousands)	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1985-86: Number of depts.	2	10	11	11	5	5	1	0	0	0	0	0	0	0
1986-87: Number of depts.	3	1	9	11	16	14	5	4	2	0	0	0	0	0
1987-88: Number of depts.	1	1	1	3	8	13	14	20	4	1	1	0	1	1

Faculty salaries

Table 13 summarizes 9-month faculty salaries in U.S. departments during the 1987-88 academic year. The second column of each table gives the number of faculty (in each rank) for which salaries were reported and, in parentheses, the total number of faculty in that rank.

Departments reported the minimum, mean, and maximum salaries of assistant, associate, and full professors and the number of faculty in each rank. For minimum salaries (and for maximum salaries), the table shows the minimum, average, and maximum. Finally, the average is given over all salaries in each faculty rank —this is not the average of the means, but the true average.

Comparing this year's figures with last year's, we find that the average Assistant Professor salary rose 6.1% from \$39544 to \$41945. the average Associate Professor salary rose 5.3% from \$45062 to \$47428, and the average Full Professor salary rose 5.9% from \$59503 to \$63037.

Tables 14-17 supply the same information as Table 13, but for departments grouped by rank. Table 18 gives salary information for the CE departments. Table 19 gives salary information for the 11 Canadian departments that gave salary information. Table 20 gives the information for all U.S. CS and CE departments.

Faculty rank	Number	Reported minimums			Average over all salaries	Reported maximums		
		Min	Mean	max		Min	Mean	Max
Assistant	760 (772)	29000	38895	43000	41945	33100	43852	56425
Associate	530 (535)	28311	42788	57882	47428	36700	51660	66640
Full	662 (675)	34483	51444	72420	63037	46200	74672	125000

Faculty rank	Number	Reported minimums			Average over all salaries	Reported maximums		
		Min	Mean	Max		Min	Mean	Max
Assistant	126 (126)	39000	41048	43000	43148	42800	46286	55000
Associate	73 (73)	28311	44962	55000	49301	45783	53348	61900
Full	143 (143)	34483	54479	71400	70330	73377	92993	125000

Faculty rank	Number	Reported minimums			Average over all salaries	Reported maximums		
		Min	Mean	Max		Min	Mean	Max
Assistant	109 (115)	39000	40674	43000	42987	43000	46388	55492
Associate	65 (68)	35000	45979	52000	51544	48650	57449	66640
Full	82 (90)	48480	53510	61000	65813	66400	84461	97000

Faculty rank	Number	Reported minimums			Average over all salaries	Reported maximums		
		Min	Mean	Max		Min	Mean	Max
Assistant	97 (99)	37100	40499	42000	43307	37100	45849	45109
Associate	54 (55)	34750	45633	51400	51112	44900	53945	61320
Full	68 (72)	46200	54146	61700	66970	75000	87793	122100

Faculty rank	Number	Reported minimums			Average over all salaries	Reported maximums		
		Min	Mean	Max		Min	Mean	Max
Assistant	428 (432)	29000	38007	43000	41017	33100	42739	56425
Associate	337 (339)	30000	41547	57882	45779	36700	50168	64925
Full	369 (370)	35525	50209	72420	58869	46200	68118	104750

Faculty rank	Number	Reported minimums			Average over all salaries	Reported maximums		
		Min	Mean	Max		Min	Mean	Max
Assistant	92 (110)	34946	38381	42500	40603	36146	42647	50000
Associate	103 (128)	35600	41900	48700	47871	39800	49503	56000
Full	150 (184)	31425	47216	74000	54907	50375	67722	89624

Faculty rank	Number	Reported minimums			Average over all salaries	Reported maximums		
		Min	Mean	Max		Min	Mean	Max
Assistant	75 (85)	37674	41620	48000	44958	42518	48241	55300
Associate	91 (95)	38500	48299	53980	54766	50483	60659	69624
Full	91 (107)	49328	58677	68578	69625	67434	81108	97774

Faculty rank	Number	Reported minimums			Average over all salaries	Reported maximums		
		Min	Mean	Max		Min	Mean	Max
Assistant	853 (883)	29000	38823	43000	41793	33100	43684	56425
Associate	640 (670)	28311	46888	57882	46981	36700	51368	66640
Full	815 (862)	31425	50920	74000	61456	46200	73810	125000

Five-year estimates of department growth

The departments were asked to estimate their faculty sizes through 1992-93, given an adequate supply of applicants (the lack of applicants has been a problem in the past). The 145 CS-CE departments would like to grow by 927 (33%) in the next five years. The 123 CS departments would like to grow by 808 (35%); last year the 117 departments expected to grow by 37%.

Last year, the 117 departments reported a desire to grow from 2173 (18.6 per department) in 1986-87 to 2387 (20.4 per department) faculty members by 1987-88. However, the 123 CS departments this year reported growing only to 2325 (18.9 per department). Table 22 indicates that all departments desire substantial growth, but with the most growth expected in the less well-ranked and in the smaller departments.

The right half of Table 22 seems strange—it indicates that, in four of the groups, the average faculty size *decreased* from 1986-87 to 1987-88. This is explained as follows. There were six more departments in 1987-88, and these were rather small. Further, growth in a department from 39 to 41 (say) would move the department into the group 40-49, thus reducing the average department size in each of the groups 30-39 and 40-49.

		1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	5-year increase	
CS	Faculty size	2325	2543	2722	2893	3031	3133	808	(35%)
	Average size	18.9	20.7	22.1	23.5	24.6	25.5	6.6	
CS-CE	Faculty size	2806	3055	3269	3460	3616	3733	927	(33%)
	Average size	19.4	21.1	22.5	23.9	25.0	25.7	6.3	

Table 22. Average Desired Five-Year Growth in CS Departments

	By rank				By department size				
	1-12	12-24	24-36	rest	1-9	10-19	20-29	30-39	40-49
Per department	12	12	12	87	8	67	31	12	4
Number of depts. 1987-88	30	25	20	16	8	15	25	34	46
Average dept. size 1986-87	30	26	21	16	7	14	24	34	43
Average dept. size 1987-88	35	32	31	22	11	21	31	39	57
Average dept. size 1992-93	5	6	10	8	4	7	7	5	14
Average five-year increase	17%	23%	48%	50%	57%	50%	29%	15%	33%
Percent growth (projected)									

Faculty Losses

As shown in Table 23, the field of computing lost only 28 people through death or retirement, which is about 1% of the total number of faculty; CS lost 18—the same as last year. This, together with the distribution of the faculty in the three ranks, points out the extreme youth of the field. Of the other CS-CE 188 faculty who left, at least 40% left for other teaching positions, 25% left academia, 12% were visitors who returned to their employer, 2% returned to graduate school, and 8% other. The percentages for CS were very similar: 44% teaching elsewhere, 25% positions outside of academia, 11% were visitors, 3% returned to graduate school, and 8% other. The number of faculty who left the departments (179) is very close to the figure reported last year (174).

Table 23. Faculty Losses

	CS-CE Depts.			CS Depts.		
	w/ Ph.D.	w/ out Ph.D.	Total	w/ Ph.D.	w/ out Ph.D.	Total
Died or retired	23	5	28	14	4	18
Were visitors, returned to employer	25	1	26	19	1	20
Teaching elsewhere	82	5	87	73	5	78
Left for non-academic position	46	7	53	38	6	44
Returned to graduate school	2	3	5	2	3	5
Other	16	1	17	13	1	14
Total	194	22	216	159	20	179

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