

FACULTY

This chapter contains 13 tables and accompanying figures. It presents data on four-year college and university faculty according to the highest mathematics degree awarded by the institution (PhD, MA, or BA) and disciplines (mathematics, statistics, and computer science) covered by the report. It includes data on the size of the full-time and part-time faculty and number of graduate teaching assistants along with the number and percent of sections taught by each group. The tenure and doctoral-holding status of full-time faculty are given in addition to age, gender, racial/ethnic distributions, average contact hours per week, and death/retirement figures.

A fairly large minority of mathematics department faculty taught computer science courses either exclusively or together with mathematics teaching. The size of the mathematics faculty increased modestly, but computer science showed a large increase. The percent of mathematics faculty with tenure remained at the 1985 level, while the percent tenured in statistics and computer science increased. As might be expected, the percent of doctoral faculty was largest for PhD universities, and lowest for four-year colleges. Part-time faculty and graduate teaching assistants continued to teach a significant percent of classes, with the percent highest in PhD mathematics departments.

For information on four-year college and university mathematics see

Tables F.1, F.2, F.3, F.4, F.5, F.6, F.7, F.10, F.13.

For information on four-year college and university statistics see

Tables F.1, F.2, F.3, F.4, F.5, F.6, F.8, E11, F.13.

For information on four-year college and university computer science see

Tables F.1, F.2, F.3, F.4, F.5, F.6, F.9, F.12, F.13.

TABLE F.1 Number of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science by instructional responsibilities and type of school; also average number of faculty per department: Fall 1990.

Number of faculty teaching:

	Math/ Stat only	CS only	Math/ Stat and CS	TOTAL Faculty	No. of Depts	Ave. no. faculty/ dept
Math Depts						
Univ(PhD)	6134	128	165	6427	165	39
Univ(MA)	4156	468	434	5058	236	21
College(BA)	5800	896	1230	7926	1020	7
TOTAL MATH	16090	1492	1829	19411	1421	14
Stat Depts						
Univ(PhD)	668	0	0	668	53	13
Univ(MA)	53	0	0	53	5	11
College(BA)	14	0	0	14	2	7
TOTAL STAT	735	0	0	735	60	12
CS Dept						
Univ(PhD)	4	2736	6	2746	136	20
Univ(MA)	0	1405	3	1408	105	13
College(BA)	0	1164	0	1164	238	5
TOTAL CS	4	5305	9	5318	479	11
GRAND TOTAL	16829	6797	1838	25464	1960	

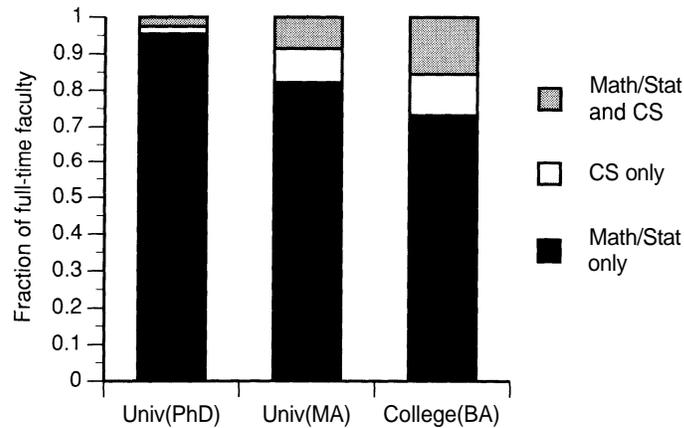


FIGURE F.1.1 Type of instructional responsibility of full-time faculty in four-year college and university Departments of Mathematics: Fall 1990.

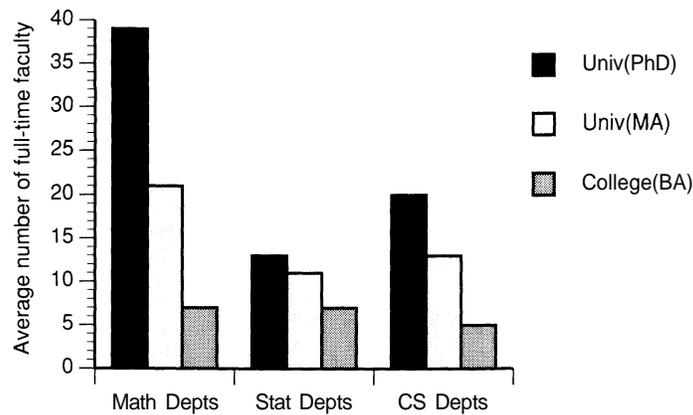


FIGURE F.1.2 Average number of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science by type of school: Fall 1990.

TABLE E1 Again we emphasize that the number of full-time faculty is by actual count not full-time equivalents. In MA and BA mathematics departments there was a large fraction of faculty teaching computer science courses. By way of comparison, assuming that those faculty teaching both computer science and mathematics/statistics courses divide their teaching evenly between the disciplines, then the computer science teaching faculty was 16% of the total MA mathematics faculty and 26% of the total BA mathematics faculty. From Table E.1, computer science course enrollment stood at 11% of the total enrollment for MA schools and 16% for BA schools.

TABLE F.2 Tenure status of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science by type of school for Fall 1990. Available data for 1975, 1980 and 1985 also given.

	Tenured 1975	Tenured 1980	Tenured 1985	Tenured 1990	No. tenured 1990	No. untenured 1990	TOTAL faculty 1990
Math Depts							
Univ(PhD)				74%	4781	1646	6427
Univ(MA)				61%	3079	1979	5058
Univ(BA)				61%	4828	3098	7926
TOTAL MATH	73%	72%	65%	65%	12688	6723	19411
Stat Depts							
Univ(PhD)				72%	484	184	668
Univ(MA)				75%	40	13	53
Univ(BA)				29%	4	10	14
TOTAL STAT	71%	62%	68%	72%	528	207	735
CS Depts							
Univ(PhD)				54%	1495	1251	2746
Univ(MA)				52%	732	676	1408
Univ(BA)				50%	583	581	1164
TOTAL CS	65%	51%	42%	53%	2810	2508	5318

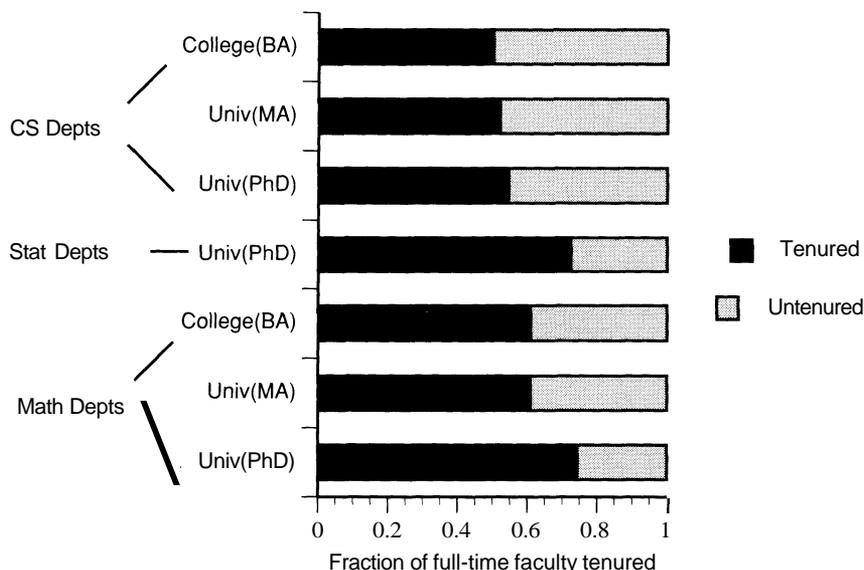


TABLE E2 It is perhaps a surprise that although the average age of mathematics faculty increased (see Table F.4) the percent of tenured faculty is the same (65%) as in 1985. Both statistics and computer science showed an increase in the percent of tenured faculty over 1985 figures.

FIGURE F.2.1 Fraction of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science tenured and untenured by type of school: Fall 1990.

TABLE F.3 Gender and Racial/Ethnic groups among full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science for Fall 1990 and among new PhDs from U.S. Departments of Mathematics and Statistics for 1980-1990.

	Full-time faculty	Women among Women faculty <35	Women among faculty <35	Amer. Indian/ Alaskan	Asian/ Pacific Islander	Black, not Hispanic	White, not Hispanic	
Math Dept								
Univ(PhD)	6427	10.3%	18.2%	0.2%	8.1%	1.0%	2.0%	88.8%
Univ(MA)	5058	22.7%	34.1%	0.0%	9.6%	3.5%	1.1%	85.8%
College(BA)	7926	25.8%	25.3%	0.0%	6.6%	3.1%	0.5%	89.8%
OVERALL MATH	19411	19.8%	25.2%	0.1%	7.9%	2.5%	1.1%	88.4%
Stat Dept								
Univ(PhD)	668	13.6%	24.7%	0.3%	21.5%	0.3%	2.4%	75.6%
Univ(MA)	53	22.6%	0.0%	0.0%	3.7%	0.0%	0.0%	96.3%
College(BA)	14	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
OVERALL STAT	735	14.3%	23.5%	0.3%	19.8%	0.3%	2.1%	77.5%
CS Dept								
Univ(PhD)	2746	11.1%	10.3%	0.0%	16.1%	0.3%	1.5%	82.0%
Univ(MA)	1408	17.1%	17.5%	0.5%	16.5%	4.8%	2.4%	75.9%
College(BA)	1164	28.1%	16.4%	0.0%	6.4%	0.0%	0.0%	93.5%
OVERALL CS	5318	16.4%	12.4%	0.1%	14.0%	1.4%	1.4%	83.1%
PhD Grads from U.S. Math and Stat Depts 1980-1990	New Grads 8201	17.0%	na	0.2%	23.1%	1.5%	2.1%	73.1%

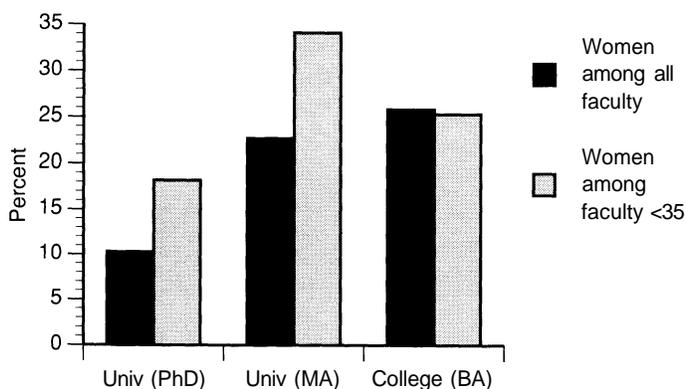


FIGURE F.3.1 Percent women among full-time faculty and among full-time faculty aged 34 or less in four-year college and university Departments of Mathematics: Fall 1990.

TABLE E3 Minorities, except for Asian/Pacific Islanders, remain underrepresented among PhD graduates in the mathematical sciences. While women have received 17% of the mathematical sciences PhDs granted in the 80's, they are almost 20% of the faculty. Almost all traditionally Black universities and colleges are in the MA and BA categories.

TABLE F.4 Age distribution of full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science by type of school: Fall 1990.

	<30	30-34	35-39	40-44	45-49	50-54	55-59	60-66	>66	TOTAL FACULTY	Ave age
Math Depts											
Univ(PhD)	6%	12%	13%	13%	15%	17%	12%	10%	2%	6427	46.5
Univ(MA)	6%	11%	12%	15%	16%	21%	12%	6%	1%	5058	45.1
Coll(BA)	8%	14%	14%	16%	18%	13%	8%	9%	0%	7926	44.5
ALL MATH	7%	12%	14%	15%	16%	16%	10%	9%	1%	19411	45.6
Stat Depts											
Univ(PhD)	6%	16%	16%	17%	12%	10%	12%	9%	2%	668	44.6
Univ(MA)	6%	10%	19%	15%	28%	9%	9%	4%	0%	53	43.3
Coll(BA)	0%	0%	0%	0%	57%	0%	14%	29%	0%	14	53
ALL STAT	6%	15%	16%	16%	14%	10%	12%	9%	2%	735	44.8
CS Depts											
Univ(PhD)	13%	16%	21%	17%	13%	11%	4%	4%	1%	2746	41.2
Univ(MA)	5%	14%	13%	20%	22%	15%	8%	3%	0%	1408	43.6
Coll(BA)	4%	9%	33%	4%	15%	31%	3%	1%	0%	1164	42.8
ALL CS	9%	14%	22%	15%	16%	16%	5%	3%	0%	5318	41.9

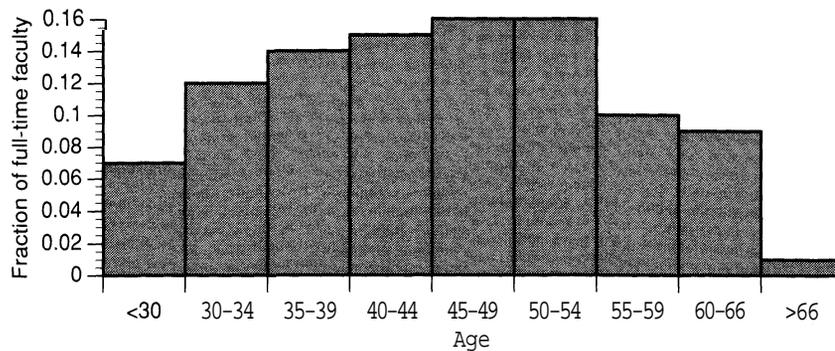


FIGURE F.4.1 Age distribution of full-time faculty in four-year college and university Departments of Mathematics: Fall 1990.

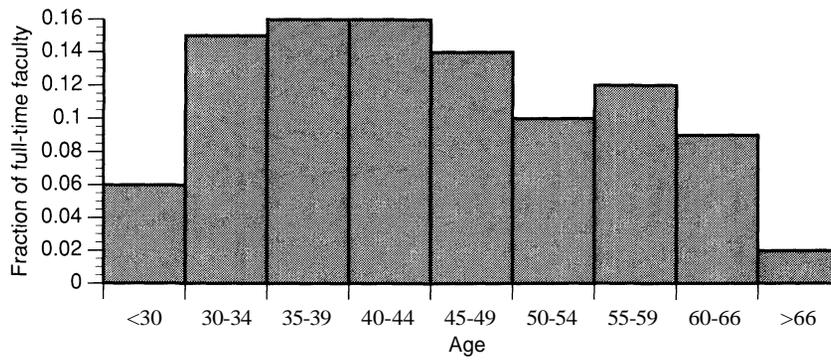


FIGURE F.4.2 Age distribution of full-time faculty in four-year college and university Departments of Statistics: Fall 1990.

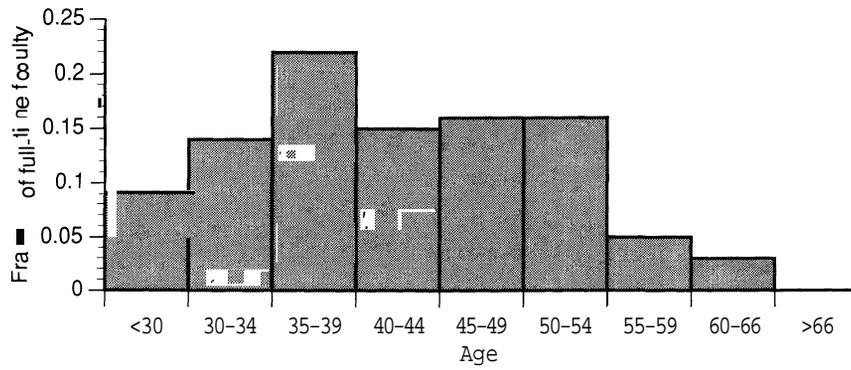


FIGURE F.4.3 Age distribution of full-time faculty in four-year college and university Departments of Computer Science: Fall 1990.

TABLE F.5 Deaths and retirements of full-time faculty from four-year college and university Departments of Mathematics, Statistics and Computer Science from Sept. 1, 1989 to Aug. 31, 1990 given as a percent of full-time faculty. Historical data is included when available.

	1979-80	1984-85	1989-90	Number of full-time faculty 1990
Math Dept				
Univ(PhD)	-	-	2.1%	6427
Univ(MA)	-	-	1.3%	5058
Univ(BA)	-	-	1.5%	7926
OVERALL MATH	0.9%	1.2%	1.6%	19411
Stat Dept				
OVERALL STAT	-	-	2.3%	735
CS Dept				
OVERALL CS	-	-	0.8%	5318

TABLE E5 If the percent of retirements and deaths for mathematics departments continues to follow the growth pattern of the last ten years, in 1995 the number of such deaths or retirements will exceed 400 per year.

TABLE F.6 Percent of departments having various weekly loads in classroom contact hours for full-time faculty in four-year college and university Departments of Mathematics, Statistics and Computer Science by type of school: Fall 1990.

	Number of schools	Contact hours					
		< 6hrs	6 hrs	7-8 hrs	9-11 hrs	12 hrs	>12 hrs
Math depts							
Univ(PhD)	165	15%	46%	24%	13%	0%	2%
Univ(MA)	236	3%	5%	6%	34%	38%	14%
College(BA)	1020	3%	2%	7%	26%	37%	25%
Stat depts							
Univ(PhD)	53	23%	77%	0%	0%	0%	0%
Univ(MA)	5	0%	0%	67%	33%	0%	0%
College(BA)	2	0%	0%	0%	0%	100%	0%
CS depts							
Univ(PhD)	136	44%	44%	7%	2%	0%	3%
Univ(MA)	107	0%	15%	15%	34%	30%	6%
College(BA)	240	10%	0%	0%	31%	26%	33%

TABLE E6 Full-time faculty in university mathematics departments continued to have more classroom contact hours than their counterparts in statistics and computer science, except at the college level where the patterns were similar.

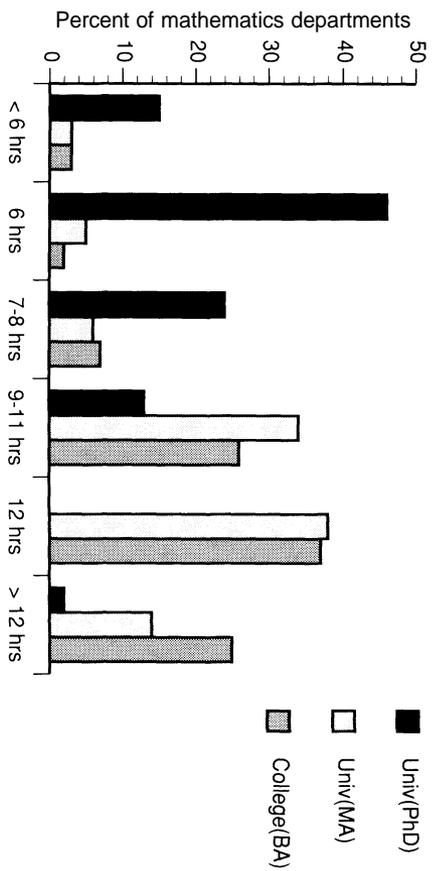


FIGURE F.6.1 Expected or typical weekly load in classroom contact hours for full-time faculty in four-year college and university departments of Mathematics by type of school: Fall 1990.

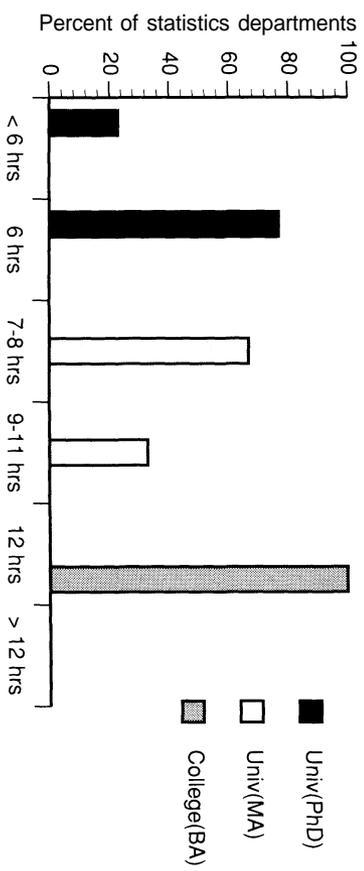


FIGURE F.6.2 Expected or typical weekly load in classroom contact hours for full-time faculty in four-year college and university departments of Statistics by type of school: Fall 1990.

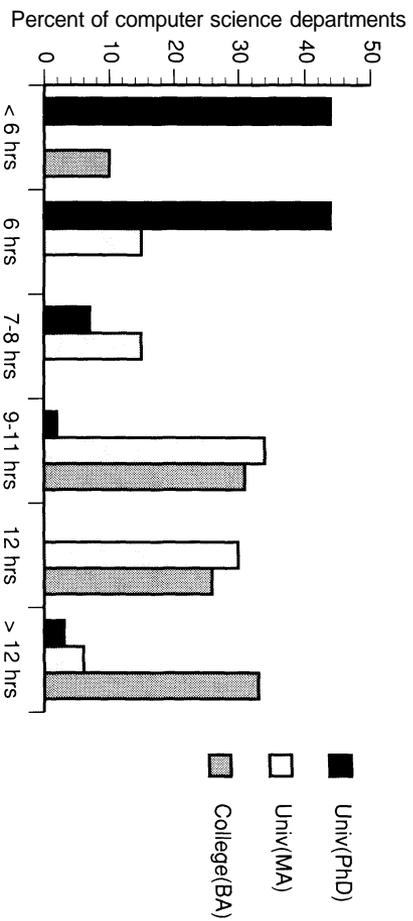


FIGURE F.6.3 Expected or typical weekly load in classroom contact hours for full-time faculty in four-year college and university Departments of Computer Science by type of school: Fall 1990.

TABLE F.7 Full-time faculty in four-year college and university Departments of Mathematics by highest degree and type of school: Fall 1990.

	Univ (PhD)	Univ (MA)	College (BA)	TOTAL
Doctoral degree	6058 (94%)	3620 (72%)	5285 (66%)	14963 (77%)
Other degree	369 (6%)	1438 (28%)	2641 (34%)	4448 (23%)
TOTAL	6427	5058	7926	19411

TABLE E7 In 1970, the number of doctoral-holding faculty in private college departments of mathematics was 42% of the total. While this survey organizes institutions by highest mathematics degree awarded, there is a reasonable fit between BA departments of mathematics and private college departments. The 1990 percent of 66% doctorates in BA colleges indicates a substantial upgrading of the educational level of this faculty over the last 20 years.

TABLE F.8 Full-time faculty in four-year college and university Departments of Statistics by highest degree and type of school: Fall 1990.

	Univ (PhD)	Univ (MA)	College (BA)	TOTAL
Doctoral degree	650 (97%)	50 (94%)	6 (43%)	706 (96%)
Other degree	18 (3%)	3 (6%)	8 (57%)	29 (4%)
TOTAL	668	53	14	735

TABLE F.9 Full-time faculty in four-year college and university Departments of Computer Science by highest degree and type of school: Fall 1990.

	Univ (PhD)	Univ (MA)	College (BA)	TOTAL
Doctoral degree	2595 (95%)	984 (70%)	610 (52%)	4189 (79%)
Other degree	131 (5%)	424 (30%)	554 (48%)	1129 (21%)
TOTAL	2746	1408	1164	5318

TABLE F.10 Percent of sections taught by full-time and part-time faculty and graduate teaching assistants in four-year college and university Departments of Mathematics by type of school: Fall 1990.

	Univ(PhD)	Univ(MA)	College(BA)	TOTAL
Total number of sections	19012	18802	29284	67098
Percent taught by full-time faculty	63%	76%	82%	75%
Percent taught by part-time faculty	12%	18%	18%	16%
Percent taught by graduate TAs	25%	6%	0%	9%

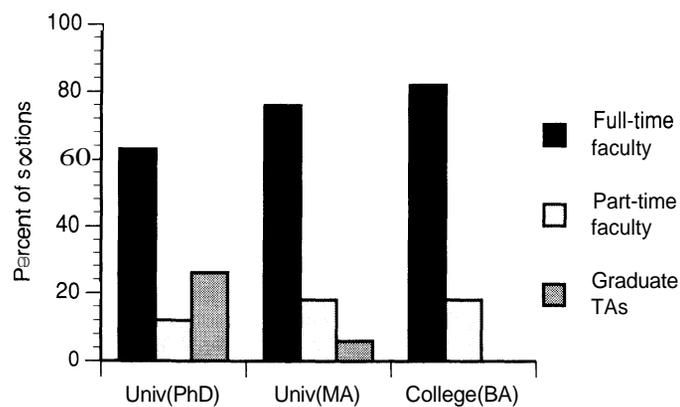


FIGURE F.10.1 Percent of sections taught by full-time and part-time faculty and graduate teaching assistants in four-year college and university Departments of Mathematics by type of school: Fall 1990.

TABLE E10 This table gives an analysis of the instructional impact of part-time faculty and graduate teaching assistants. (Sections of graduate teaching assistants are included only if it is their own course.) At the PhD departments, part-time faculty and graduate teaching assistants accounted for just over 7,000 sections, while Table E.2 shows that the number of sections in remedial and precalculus mathematics for these departments totaled 6444.

TABLE F.11 Percent of sections taught by full-time and part-time faculty and graduate teaching assistants in four-year college and university Departments of Statistics by type of school: Fall 1990.

	Univ(PhD)	Univ(MA)	College(BA)	OVERALL
Total number of sections	812	124	42	978
Percent taught by full-time faculty	83%	69%	53%	78%
Percent taught by part-time faculty	10%	22%	47%	15%
Percent taught by graduate TAs	7%	9%	0%	7%

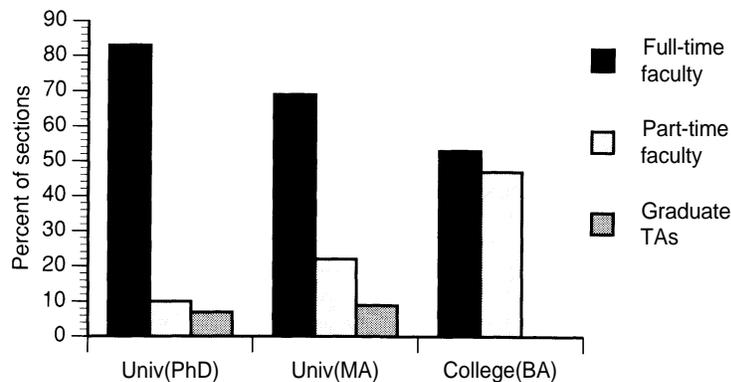


FIGURE F.11.1 Percent of sections taught by full-time and part-time faculty and graduate teaching assistants in four-year college and university Departments of Statistics by type of school: Fall 1990.

TABLE EII As in Table F.10, sections for graduate teaching assistants are included only if it is their own course.

TABLE F.12 Percent of sections taught by full-time and part-time faculty and graduate teaching assistants in four-year college and university Departments of Computer Science by type of school: Fall 1990.

	Univ(PhD)	Univ(MA)	College(BA)	OVERALL
Total number of sections	3921	2788	2824	9533
Percent taught by full-time faculty	76%	78%	88%	80%
Percent taught by part-time faculty	11%	12%	10%	11%
Percent taught by graduate TAs	13%	10%	2%	9%

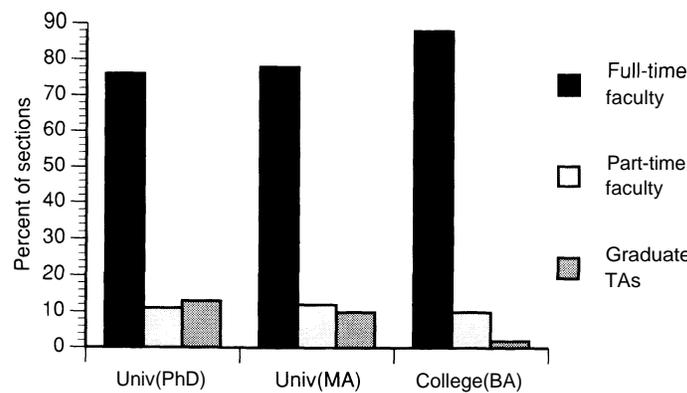


FIGURE F.12.1 Percent of sections taught by full-time and part-time faculty and graduate teaching assistants in four-year college and university Departments of Computer Science by type of school: Fall 1990.

TABLE E12 Sections for graduate teaching assistants were included only if it was their own course. In PhD computer science departments, graduate teaching assistants taught 13% of all sections; in mathematics departments the corresponding number was 25%.

TABLE F.13 Number of part-time faculty and graduate teaching assistants in four-year college and university Departments of Mathematics, Statistics and Computer Science by type of school. The percent that part-time faculty and Graduate TAs are of full-time faculty is given in parentheses: Fall 1990.

	Part-time faculty	Graduate TAs	No. of depts	Ave. no. of part-time	Ave. no. of GTAs
Math Depts					
Univ(PhD)	1129 (18%)	6261 (97%)	165	7	38
Univ(MA)	2052 (41%)	845 (17%)	236	8	4
College(BA)	3605 (45%)	191 (2%)	1020	4	0
TOTAL MATH	6786 (35%)	7297 (38%)	1421	5	5
Stat Depts					
Univ(PhD)	67 (10%)	419 (63%)	53	1	8
Univ(MA)	23 (43%)	30 (57%)	5	5	6
College(BA)	0 (0%)	0 (0%)	2	0	0
TOTAL STAT	90 (12%)	449 (61%)	60	1	7
CS Depts					
Univ(PhD)	400 (15%)	2836 (103)	136	3	21
Univ(MA)	464 (33%)	647 (46%)	105	4	6
College(BA)	573 (49%)	143 (12%)	238	2	1
TOTAL CS	1437 (27%)	3626 (72%)	479	3	8
GRAND TOTAL	8313 (33%)	11372 (45%)	1960		

TABLE F.13 For PhD mathematics and computer science departments there was nearly a match between the number of full-time faculty and graduate teaching assistants. The table indicates a vigorous master's program at the MA computer science departments. The number of part-time college and university faculty continued to be a significant percentage of the full-time faculty total, especially at the collegiate level. Perhaps the graduate TA's in BA colleges are graduate students in other departments.

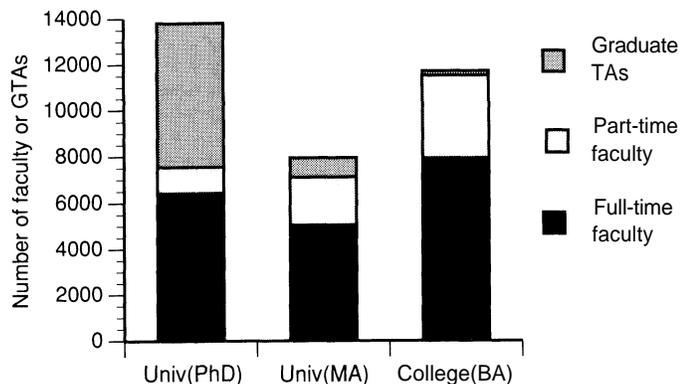


FIGURE F.13.1 Number of full-time faculty, part-time faculty and graduate teaching assistants in four-year college and university Departments of Mathematics by type of school: Fall 1990.

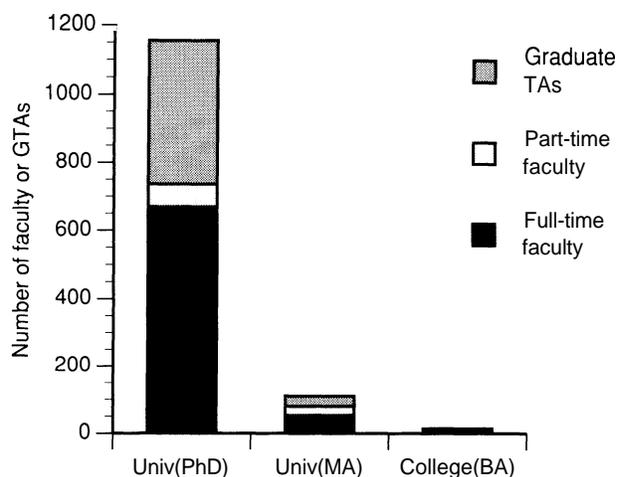


FIGURE F.13.2 Number of full-time faculty, part-time faculty and graduate teaching assistants in four-year college and university Departments of Statistics by type of school: Fall 1990.

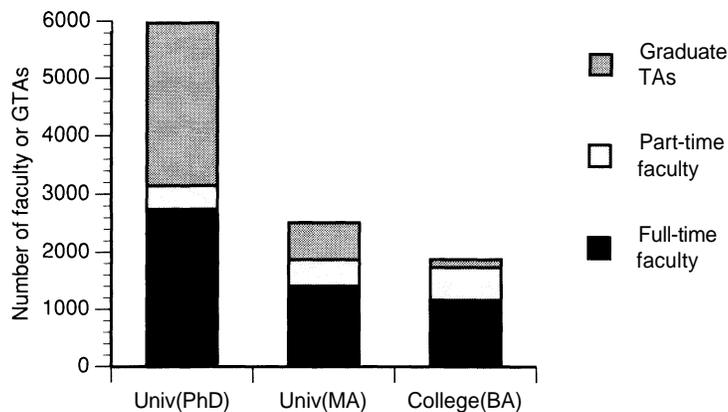


FIGURE F.13.3 Number of full-time faculty, part-time faculty and graduate teaching assistants in four-year college and university Departments of Computer Science by type of school: Fall 1990.

