

# 1996 AMS-IMS-MAA Annual Survey

## *(Second Report)*

Update on the 1996 Survey of New Doctoral Recipients,  
Faculty Characteristics,  
Enrollment Profile and Undergraduate Majors,  
and Graduate Student Profile

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This is the Second Report of the 1996 Survey, which includes analysis of data on departmental enrollments, majors, and faculty size as well as an update of the First Report, which appeared in the *Notices of the AMS* in December 1996, pages 1493–1511. It included a report on the 1995–96 new doctoral recipients, a report on salaries of new doctoral recipients, and salary data on faculty members in four-year colleges and universities.

The 1996 AMS-IMS-MAA Annual Survey represents the fortieth in an annual series begun in 1957 by the Society. The 1996 Survey was under the direction of the AMS-IMS-MAA Data Committee, whose members were Paul W. Davis, Lorraine Denby, John D. Fulton (chair), Malay Ghosh, Don O. Loftsgaarden, James W. Maxwell (*ex officio*), S. Brent Morris, M. Beth Ruskai, Ann K. Stehney, and Ann E. Watkins. Comments or suggestions regarding the Annual Survey may be directed to the Committee.

### Highlights

As of May 1, 1997, U.S. departments reported that they had granted 1,154 doctorates in the mathematical sciences between July 1, 1995, and June 30, 1996, a decrease of 6.7% from the all-time high of 1,237 reported the previous year. The proportion of 1995–96 doctoral recipients who were female decreased slightly from 23% last year to 22% this year.

The final count reported by departments shows 505 U.S. citizens among the 1,147 doctoral recipients whose citizenship was known. This number represents a decrease over the 579 last year. The proportion of 1995–96 new doctoral recipients who are U.S. citizens is 44.0%, down from the reported 47.9% of the past year but equal to the previous two years.

After the prior year's increase of 9.4% in positions under recruitment by mathematics departments, recruitment of new doctoral faculty in 1995–96 fell by 5.6%. Open doctoral positions in departments in Groups I through V increased by 7.1% but fell precipitously by 14.0% in Groups M and B. In spite of the decrease in recruiting, total actual doctoral hires increased slightly. Male hires remained essentially constant, and female hires increased by 6.2%. The unemployment rate for 1995–96 new doctoral recipients

fell back to 8.1% after two year at a record high of 10.7%. In addition, 3.4% of the new doctoral recipients took part-time employment, the first decrease since this figure started being reported in 1990–91. The proportion of doctoral recipients accepting positions in government, business, and industry increased to 20.2% in 1995–96 from 17.5% the previous year.

The number of full-time faculty in mathematics departments remained nearly constant, increasing by a mere 0.2% over 1994–95. The number of nontenure-track, full-time, doctoral faculty increased by 5.7% this year after decreasing by about the same amount the previous year. The number of part-time faculty increased by an alarming 9.8%, much greater than last year's 1.0% increase.

Undergraduate course enrollments rose 1.1%, and graduate course enrollments fell by a similar fraction, dropping 0.9%

The total number of full-time, first-year graduate students in Ph.D.-granting mathematics departments declined 8.9% from fall 1995 to fall 1996, the fifth consecutive year a decline was reported. In addition, the number of female first-year graduate students fell 6.4%, a significant decline.

As has been the case for a number of years, much of the data in these reports is presented for departments divided into groups according to several characteristics, the principal one being the highest degree offered in the mathematical sciences. Doctorate-granting departments of mathematics are further subdivided according to their ranking of "scholarly quality of program faculty" as reported in the 1995 publication *Research-Doctorate Programs in the United States: Continuity and Change*.<sup>1</sup> These rankings update those reported in a previous study published in 1982.<sup>2</sup> Consequently, the departments that now comprise Groups I, II, and III differ significantly from those used in prior surveys. The reader should keep this in mind when attempting to make comparisons by group with previous Annual Survey reports.

The subdivision of the Group I institutions into Group I Public and Group I Private is new with the 1996 Annual Survey. With the increase in number of the Group I departments from 39 to 48, the AMS-IMS-MAA Data Committee judged that a further subdivision along the lines of public and private would provide more meaningful reporting of the data for these departments.

Brief descriptions of the groupings used for reporting purposes are as follows:

**Group I** is composed of 48 departments with scores in the 3.00–5.00 range.

**Group I Public** and **Group I Private** are Group I departments at public institutions and private institutions, respectively.

**Group II** is composed of 56 departments with scores in the 2.00–2.99 range.

**Group III** contains the remaining U.S. departments reporting a doctoral program, including a number of departments not included in the 1995 ranking of program faculty.

**Group IV** contains U.S. departments (or programs) of statistics, biostatistics, and biometrics reporting a doctoral program.

**Group V** contains U.S. departments (or programs) in applied mathematics/applied science, operations research, and management science which report a doctoral program.

**Group Va** is applied mathematics/applied science; **Group Vb** is operations research and management science.

**Group M** contains U.S. departments granting a master's degree as the highest graduate degree.

**Group B** contains U.S. departments granting a baccalaureate degree only.

<sup>1</sup>*Research-Doctorate Programs in the United States: Continuity and Change*, edited by Marvin L. Goldberger, Brendan A. Maher, and Pamela Ebert Plattau, National Academy Press, Washington, D.C., 1995.

<sup>2</sup>These findings were published in *An Assessment of Research-Doctorate Programs in the United States: Mathematical and Physical Sciences*, edited by Lyle V. Jones, Gardner Lindzey, and Porter E. Coggeshall, National Academy Press, Washington, D.C., 1982. The information on mathematics, statistics, and computer science was presented in digest form in the April 1983 issue of the Notices, pages 257–267, and an analysis of the classifications was given in the June 1983 Notices, pages

we update information about new doctoral recipients reported earlier in the December 1996 issue of the *Notices of the American Mathematical Society* (see pages 1493–1511). Second, we present results about the characteristics of faculties and of instructional programs at the undergraduate and graduate levels.

In the interest of continuity in the analysis and presentation and to make year-to-year comparisons possible, we report the same kinds of information that were included in last year's Second Report. Details are presented concerning employment patterns for new doctoral recipients, department faculty characteristics, and distribution of enrollments in different types of departments.

We follow the procedure started in the 1991 Second Report of reporting projections of survey responses to the entire population of mathematical sciences departments. The projections of survey responses to the entire population are done within strata defined by the survey groups. For example, on the part of the Departmental Profile Survey concerned with faculty, there were 40 usable responses from the 48 departments in Group I (see Table 3A). The 40 responding departments reported 34 full-time faculty to have retired or died, and this tally was multiplied by 40/48 to obtain the projected value of 41 for the group as a whole.

We caution the reader that survey responses and the proportional projections are potentially biased due to (i) selection bias of the responding departments and (ii) inhomogeneity of departments within the survey groups. The responses and projections for total faculty size are slightly affected by this bias. Nonetheless, the problems of a possible selection bias are mitigated by the generally high response rates to the Annual Survey. In groups with lower response rates (e.g., Groups M and B) there is greater risk of biased projections.

### Update on the 1996 Survey of New Doctoral Recipients

Information about recipients of doctoral degrees awarded between July 1, 1995, and June 30, 1996, was collected from doctorate-granting departments in late spring 1996 and from a follow-up census of individual degree recipients. The First Report of the 1996 Annual Survey (December 1996 issue of the *Notices of the AMS*, pages 1493–1511) presents the survey results obtained about new doctoral recipients up to late September 1996. Here we update the earlier figures on the basis of more complete returns.

The final count of new doctoral recipients (Table 1A) shows a total of 1,154 doctorates in mathematical sciences awarded by U.S. institutions. This number represents a decrease of 9.3% from the 1,237 doctorates awarded during 1994–95. Table 1B shows the overall and by-gender trends in the spring count of new doctoral recipients from 1985–86 through 1995–96.

Citizenship status is known for 1,147 of the 1,154 new doctoral recipients. The final count of new doctoral recipients who are U.S. citizens is 505. The percentage of 1995–96 new doctoral recipients who are U.S. citizens is 44.0%, down from the reported 47.9% of the past year and equal to the previous two years. The final count of new doctoral

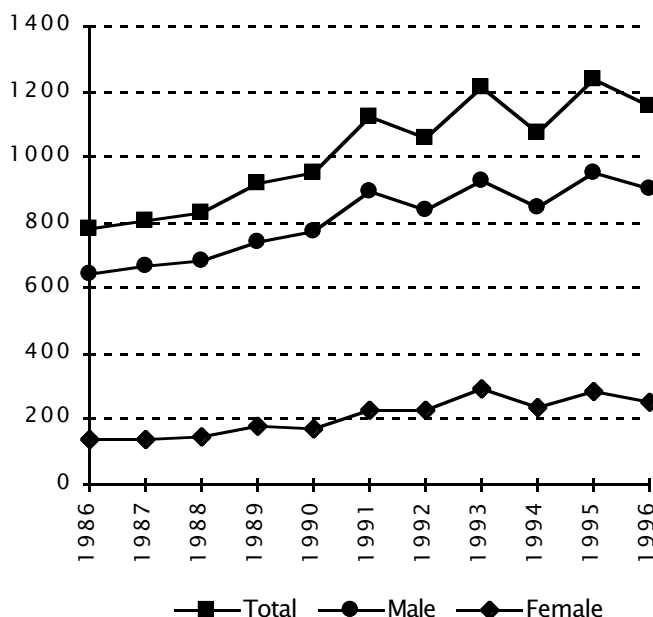
## Introduction

The AMS-IMS-MAA Annual Survey collects information each year about departments, faculties, and students in the mathematical sciences at four-year colleges and universities in the United States. This article reports results from two parts of the 1996 AMS-IMS-MAA Annual Survey. First,

**Table 1A: U.S. New Doctoral Recipients, Fall and Final Counts**

Year	Fall	Final
1991-1992	1050	1062
1992-1993	1202	1214
1993-1994	1059	1076
1994-1995	1226	1237
1995-1996	1153	1154

**Table 1B: Trend Chart of Final Count of New Doctoral Recipients, 1986-1996**



recipients who are non-U.S. citizens increased by about 2.5% to 646, but was still below the record high of 679 reported in the spring count three years ago. Pages 1498-1499 of the First Report present further information related to the citizenship of the 1995-96 new doctoral recipients.

Of the 505 U.S. citizen new doctoral recipients, 118 are women and 387 are men. The 118 women new doctoral recipients comprise 23.4% of the U.S. citizen total for 1995-96, slightly less than last year. The number of U.S. citizen men who were awarded Ph.D. degrees in mathematical sciences during 1995-96, 387, decreased by 11.4% from 1994-95.

Tables 2A and 2B display updates of employment data for the fall count of 1995-96 doctoral recipients, partitioned by field of thesis research and by the survey group of their degree department. At the time of the Second Report, the fall 1996 employment status of 1,010 of the 1,153 doctoral recipients was known. Of the 1,010, 49.7% assumed academic employment in the U.S., and 63.4% took academic employment in the U.S. or other countries. Both of these percentages are approximately equal to similar percentages reported the last two years, but down from their 1992-93, 1991-92, and 1990-91 levels.

Employment of 1995-96 doctoral recipients by U.S. Ph.D.-granting institutions increased by 2.8% from the corresponding figure for 1994-95. Employment of the 1995-96 doctoral recipients by research institutes, government, and business and industry increased by 7.7% (including a 6.8% increase in employment by business and industry). Foreign academic employment of new doctoral recipients decreased by 12.7%.

Among those 1995-96 doctoral recipients taking employment in the U.S., 30.9% took nonacademic employment (government or business and industry). This percentage was 4 percentage points more than for the 1994-95 doctoral recipients. The fraction of the 1995-96 doctoral recipients taking nonacademic employment varied significantly by field of thesis. Of those whose field of thesis was either algebra/number theory, real or complex analysis, or geometry/topology, 15.9% took nonacademic employment. For probability or statistics, the analogous figure is 46.4%; and for applied math, discrete math/combinatorics/logic/computer science, numerical analysis/approximations, or linear/nonlinear optimization, the analogous figure is 37.7%.

Group I departments continued to award the most doctorates. Of the 1,153 doctoral degrees awarded in the mathematical sciences between July 1, 1995, and June 30, 1996, 43.3% (499) were awarded by Group I departments, more than double the number of any other group.

The fall 1996 unemployment rate for new doctoral recipients, based on information gathered by the time of the Second Report, increased significantly from 6.7% for 1991-92 to 8.9% for 1992-93 to 10.7% for 1993-94 and 1994-95. For 1995-96, this unemployment rate made a significant drop to 8.1%, the lowest rate in three years. The counts on which these rates are determined do not include those new doctoral recipients whose fall employment status was unknown at the time of the Second Report.

Table 2C presents the 1977-78 through 1995-96 trend in the final fall unemployment rate of new doctoral recipients.

Although the lower unemployment rate of 8.1% among the 1995-96 mathematical sciences doctoral recipients is a very promising sign, the job market continues to be a difficult one. The data presented in Tables 2A and 2B do not reflect the fact that 64.1% of the 315 doctoral recipients in 1995-96 who took academic employment responded individually that they assumed academic positions that are not tenure-track, up 4% from last year. Of those non-tenure-track positions, 49.5% have contract durations of two years or less, down from 55% in 1994-95. Of the 242 positions in U.S. Ph.D.-granting departments filled by 1995-96 doctoral recipients, 23.1% were held by new doctoral recipients who received their degree from the same institution. Thirty-four (3.8%) of the 903 positions reported as filled in Table 2A are part-time, and at least 7 of the 34 incumbents are still seeking full-time employment.

The names of the 1995-96 doctoral recipients and their thesis titles were published in the February 1997 *Notices of the AMS*.

**Table 2A: Fall 1996 Employment Status of 1995–1996 U.S. New Doctoral Recipients in the Mathematical Sciences, Updated May 1997**

TYPE OF EMPLOYER	FIELD OF THESIS												TOTAL
	Algebra Number Theory	Real or Complex Analysis	Geometry/Topology	Discr. Math./Combin./Logic/Comp. Sci.	Probability/Statistics	Applied Math.	Numerical Analysis Approximations	Functional Analysis	Linear Nonlinear Optim./Control	Differential Integral and Difference Equations	Harmonic Analysis and Topological Groups	Other/Unknown	
Group I (Public)	15	4	16	5	4	3	6	5	2	7	5	1	73
Group I (Private)	13	2	14	5	2	2	4		1	3	3	0	49
Group II	9	2	12	2	5	2	4	3	1	6	1		47
Group III	8	1	1	1	8	1			1	4	1	2	28
Group IV		1			28	1							30
Group V			1	2		5	4		2		1		15
Masters	14	4	4	11	10	3	5	2	2	6	2	4	67
Bachelors	24	5	17	12	14	3	8	5	3	5	4	7	107
Two-Year Colleges	3		3		1	3		1	1	1	2		15
Other Academic Depts.	4		6	5	30	18	3			4	1		71
Research Institutes	3		4	2	3	1	2		1	1	2		19
Government	4	1	4	2	11	2	4			2			30
Business and Industry	12	3	12	11	80	38	12	5	14	11	4	1	203
Foreign, Academic	23	5	26	12	20	12	7	4	2	20	7		138
Foreign, Nonacademic	2		1	1	3	2	1		1				11
Not seeking employment	2	1	1		4	2	2	7	1	4	1		25
Still seeking employment	11	5	13	10	10	6	9	4	2	9	3		82
Unknown (U.S.)	12	2	7	8	12	6	5		3	5		2	62
Unknown (non-U.S.)*	9	6	9	6	21	11	5	1	3	5	4	1	81
<b>Column Total</b>	<b>168</b>	<b>42</b>	<b>151</b>	<b>95</b>	<b>266</b>	<b>121</b>	<b>81</b>	<b>37</b>	<b>40</b>	<b>93</b>	<b>41</b>	<b>18</b>	<b>1153</b>
<b>Column Subtotals</b>													
Male	134	32	125	77	196	98	67	30	33	73	31	8	904
Female	34	10	26	18	70	23	14	7	7	20	10	10	249

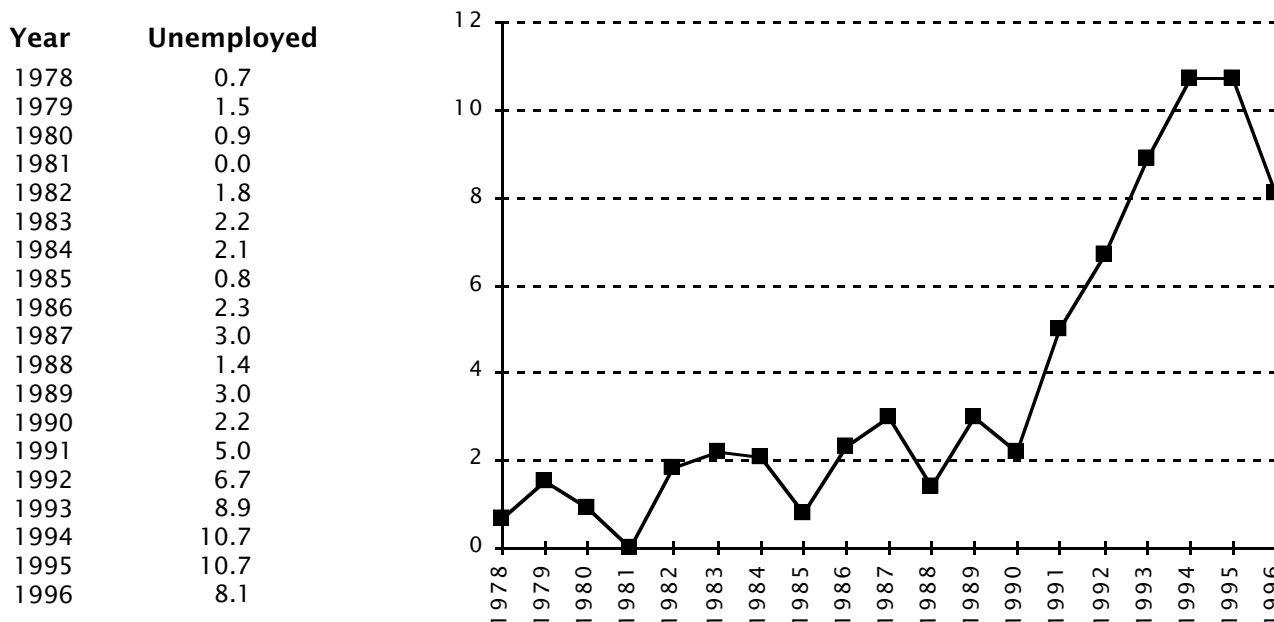
\*Non-U.S. citizens who return to their country of citizenship and whose status is reported as "unknown" or "still seeking employment".

**Table 2B: Fall 1996 Employment Status of 1995–1996 U.S. New Doctoral Recipients by Type of Granting Department, Updated May 1997**

TYPE OF EMPLOYER	TYPE OF DOCTORAL DEGREE-GRANTING DEPARTMENT						ROW TOTAL	ROW SUBTOTAL	
	Group I (Public) Math	Group I (Private) Math	Group II Math	Group III Math	Group IV Statistics	Group V Applied Math/OR		Male	Female
Group I (Public)	47	16	6	1		3	73	56	17
Group I (Private)	18	25	3	1		2	49	42	7
Group II	19	7	16	1	3	1	47	37	10
Group III	7	2	3	11	4	1	28	21	7
Group IV	1		1	1	26	1	30	24	6
Group V	3	1				11	15	14	1
Masters	21	4	19	15	4	4	67	44	23
Bachelors	23	10	40	26	4	4	107	79	28
Two-Year Colleges	8	1	6				15	12	3
Other Academic Depts.	12	10	7	3	23	16	71	54	17
Research Institutes	6	7	2		3	1	19	17	2
Government	11	3	1	2	10	3	30	23	7
Business and Industry	31	17	33	18	55	49	203	168	35
Foreign, Academic	45	31	27	10	15	10	138	110	28
Foreign, Nonacademic	2	3	1	1		4	11	9	2
Not seeking employment	7	3	5	6	3	1	25	20	5
Still seeking employment	23	10	28	11	6	4	82	62	20
Unknown (U.S.)	21	13	9	5	5	9	62	48	14
Unknown (non-U.S.)*	20	11	15	12	11	12	81	64	17
<b>Column Total</b>	<b>325</b>	<b>174</b>	<b>222</b>	<b>124</b>	<b>172</b>	<b>136</b>	<b>1153</b>	<b>904</b>	<b>249</b>
<b>Column Subtotals</b>									
Male	263	137	181	89	126	108	904		
Female	62	37	41	35	46	28	249		

\*Non-U.S. citizens who return to their country of citizenship and whose status is reported as "unknown" or "still seeking employment".

**Table 2C: Percentage of New Doctoral Recipients Unemployed, as reported in the respective Annual Survey Second Reports, 1978-1996**



**Faculty Characteristics**

The Departmental Profile Survey, sent in fall 1995 to mathematical sciences departments at four-year colleges and universities as part of the Annual Survey, provided information about faculty and instructional programs. In order that more reliable year-to-year comparisons could be made, data for fall 1994 and fall 1995 were gathered, except for data on retirement, deaths, and faculty recruitment. The percent change figures reported in Tables 3E and 3F, Tables 4A and 4D, and Tables 5A, 5C, and 5D are based on these two years of data. The First Report presented information collected earlier about faculty salaries (pages 1507-1511 of the December 1996 issue of the *Notices of the AMS*).

Table 3A displays losses of full-time mathematical sciences faculty due to retirements or deaths. The fall 1996 mathematical sciences faculty attrition rate for mathematics departments (Groups I, II, III, M & B combined) was 2.3%, an increase from the fall 1995 reported rate of 2.2% but still lower than the fall 1994 reported rate of 2.6%. All three percentages are significantly ahead of the 1.8% faculty attrition rate reported for fall 1991. The increased attrition rates reported for fall 1992 through fall 1996 may reflect the numerous early retirement incentive programs which have occurred in academic institutions during these years. Table 3B depicts the trend in the faculty attrition rates for mathematics departments during the years 1986-1996.

Table 3C displays Departmental Profile Survey information on the number of full-time faculty positions in mathematical sciences departments under recruitment in 1995-96. The number of positions in mathematics de-

partments under recruitment decreased 5.6% from 1994-95. Table 3D presents the trend of steady decrease in positions under recruitment in mathematics departments during 1991 through 1994, followed by an increase in 1995, and then a decrease in 1996. Table 3C of this report as compared with Table 3C of the 1995 Second Report indicates that Groups I and II had significant increases and Group IV had a slight increase in positions under recruitment, while decreases were reported for all other groups.

Table 3C indicates that 87.4% of the positions under recruitment in 1995-96 by mathematics departments were available to new doctoral recipients but only 64.4% were tenured/tenure-track. The number of tenured/tenure-track positions under recruitment by mathematics departments decreased by 4.3% from last year's count.

Tables 3E and 3F describe the makeup of faculties by sex, tenure status, and doctoral/nondoctoral degree in the different groups. Table 3E indicates that the total number of full-time faculty in mathematics departments slightly increased from fall 1995 to fall 1996. After last years reported decrease of 6.5%, the numbers of non-tenure-track, doctoral, full-time faculty in mathematics departments increased by 5.7%. Among all groups except Groups I there were significant decreases in the number of untenured, tenure-track doctoral faculty, with an overall decrease of 3.5% in mathematics departments. The number of non-tenure-track, doctoral, full-time faculty who are females increased by 15.1%.

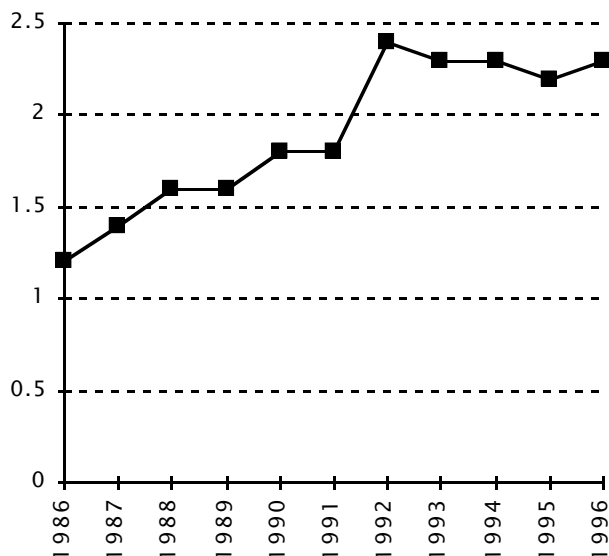
**Table 3A: Faculty Attrition\***

	GROUP								
	I	II	III	I, II & III	IV	V	M	B	I, II, III, M & B
Full-time faculty who retired or died Total number	41	40	43	124	30	5	136	181	440
Full-time faculty in Group Percentage (%)	1.7	1.8	2.2	1.9	2.4	0.9	2.6	2.4	2.3
Usable responses** Total number	40	42	57	139	53	12	127	433	699
Percentage (%)	83	75	79	79	66	32	55	44	50

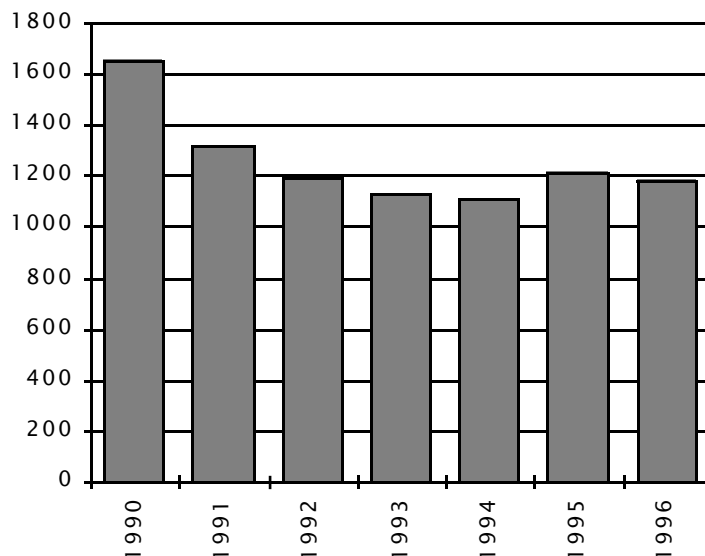
\* Number and percentage of full-time faculty who were in the department in fall 1995 but were reported to have retired or died by fall 1996.

\*\* All counts are projected from the survey response to the respective Group as a whole. The number of usable responses varies for different sections of the Departmental Profile survey. The response rates reported here apply to faculty size and recruitment data only.

**Table 3B: Percent of Full-time Doctoral Faculty Who Retired or Died in Groups I, II, III, M & B Combined**



**Table 3D: Number of Full-time Doctoral Positions Under Recruitment in Groups I, II, III, M & B Combined**



**Table 3C: Recruitment of Doctoral Faculty**

	GROUP								
	I	II	III	I, II & III	IV	V	M	B	I, II, III, M & B
Open doctoral positions Total number*	216	140	106	462	78	30	240	476	1178
Tenured/tenure-track	78	75	80	232	50	30	205	323	760
Open to new doctoral recipients Tenured/tenure-track	155	119	95	368	69	14	226	439	1033
	43	64	69	177	48	19	185	295	657
Male doctoral hires	167	87	64	318	41	16	149	277	743
Female doctoral hires	36	20	30	86	12	2	55	108	249
Male nondoctoral hires	1	8	1	10	2	0	7	27	45
Female nondoctoral hires	0	1	1	3	2	2	2	23	27
Unfilled positions	13	17	13	43	21	12	40	53	136

\*Number of full-time doctoral positions under recruitment in 1995-1996 to be filled for 1996-1997. Subtotals of rounded table values may exhibit rounding errors.

**Table 3E: Faculty Size, Fall 1996, and Percentage Change in Size, Fall 1995 to Fall 1996**

	GROUP								
	I	II	III	I, II & III	IV	V	M	B	I, II, III, M & B
Full-time faculty									
Total number	2424	2225	1963	6612	1280	527	5245	7587	19445
Percentage change (%)	-0.7	-0.7	1.2	-0.1	-2.6	2.1	-0.5	1.0	0.2
Doctoral full-time faculty									
Total number	2384	2061	1756	6202	1235	520	4266	5811	16278
Percentage change (%)	-0.7	-0.5	1.2	-0.1	-1.7	2.2	0.5	2.9	1.1
Tenured doctoral full-time faculty									
Total number	1802	1656	1309	4767	871	387	3312	4028	12107
Percentage change (%)	-0.3	-0.2	2.3	0.4	-0.5	3.1	2.1	3.5	1.9
Untenured, tenure-track doctoral full-time faculty									
Total number	227	251	339	816	223	74	816	1364	2996
Percentage change (%)	3.3	-5.5	-2.2	-1.8	-7.5	-6.6	-5.1	-3.6	-3.5
Nontenure-track doctoral full-time faculty									
Total number	355	155	109	618	140	59	138	419	1175
Percentage change (%)	-4.8	6.4	0.0	-1.4	1.1	8.3	-1.3	22.8	5.7
Part-time faculty									
Total number	210	365	513	1088	142	10	1879	3055	6022
Percentage change (%)	9.4	10.0	8.3	9.1	-23.6	-66.4	14.3	7.3	9.8

**Table 3F: Female Faculty Size, Fall 1996, and Percentage Change in Size, Fall 1995 to Fall 1996**

	GROUP								
	I	II	III	I, II & III	IV	V	M	B	I, II, III, M & B
Full-time female faculty									
Total number	209	285	347	842	193	68	1262	1900	4003
Percentage change (%)	1.8	2.9	10.9	5.7	-11.7	7.1	0.7	3.6	3.1
Doctoral full-time female faculty									
Total number	184	179	231	593	157	64	780	1170	2543
Percentage change (%)	2.7	6.3	14.4	8.1	-9.6	3.7	3.7	6.5	5.9
Tenured doctoral full-time female faculty									
Total number	84	92	115	291	65	25	488	636	1415
Percentage change (%)	2.9	9.5	15.2	9.6	7.5	0.0	5.1	3.0	5.1
Untenured, tenure-track doctoral full-time female faculty									
Total number	29	52	82	163	60	12	259	437	859
Percentage change (%)	9.1	-2.5	10.2	5.6	-14.9	24.3	2.9	5.5	4.7
Nontenure-track doctoral full-time female faculty									
Total number	71	35	34	140	32	27	33	96	269
Percentage change (%)	0.0	13.0	22.7	8.0	-25.0	0.0	-10.0	44.8	15.1
Part-time female faculty									
Total number	50	136	215	401	45	0	778	1343	2522
Percentage change (%)	-17.6	4.1	13.3	5.2	-21.1	0.0	18.8	7.9	10.7

### Enrollment Profile and Undergraduate Majors

The Departmental Profile Survey obtains information about enrollments and distribution of instructional effort in the mathematical sciences departments.

Table 4A indicates that undergraduate mathematical sciences course enrollments increased by 1.1% from fall 1995 to fall 1996. The graduate course enrollments decreased by 0.9% over the same period. A comparison of this Table 4B, which displays fall 1996 undergraduate enrollments distribution, with Table 4B from last year's Second Report, page 855 of the August 1996 *Notices of the AMS*, shows a similar pattern of enrollment distributions. Changes

in make up of Groups I, II and III make individual comparisons to earlier Second Reports unreliable. However, comparisons of Groups I, II, and III combined in Tables 4A and 4B to last year's Second Report show no significant changes.

Table 4D reports that the total number of junior/senior majors in mathematics departments (Groups I, II, III, M & B combined) decreased by 0.9% from fall 1995 to fall 1996. The number of female junior/senior majors declined by 0.3% during the same period. Groups II, M, and B reported slight increases in female majors, with Group V reporting a sizeable increase.

**Table 4A: Undergraduate and Graduate Enrollments (thousands), Fall 1996, and Percentage Change in Enrollments, Fall 1995 to Fall 1996**

	GROUP								
	I	II	III	I, II & III	IV	V	M	B	Total
Undergraduate course enrollments									
Total number (thousands)	214	245	213	672	88	21	589	706	2076
Percentage change (%)	1.4	1.2	-0.6	0.7	0.9	2.7	1.1	1.4	1.1
Graduate course enrollments									
Total number (thousands)	11	9	7	27	18	10	13	2	70
Percentage change (%)	-9.4	-6.7	3.2	-5.3	2.1	5.7	-1.5	10.6	-0.9
Usable responses*									
Total number	40	40	57	137	45	10	122	418	732
Percentage (%)	83	71	79	78	57	29	52	42	48

\* The number of usable responses varies for different sections of the Departmental Profile survey. The response rates reported here apply to Tables 4A through 4C on enrollments only. All counts are projected from the survey response to the respective Group as a whole.

**Table 4B: Distribution of Undergraduate Enrollments (thousands), Fall 1996**

	GROUP															
	I		II		III		I, II & III		IV		V		M		B	
Remedial mathematics*																
Total number (thousands), %**	17	8	18	7	29	14	64	9	2	3	0	0	109	18	94	13
Precalculus																
Total number (thousands), %	29	14	52	21	45	21	127	19	4	5	1	3	102	17	98	14
1st-year Calculus (mainstream)																
Total number (thousands), %	69	32	49	20	34	16	151	23	5	6	2	11	65	11	89	13
1st-year Calculus (non-mainstream)																
Total number (thousands), %	25	12	27	11	18	9	70	10	3	3	0	0	39	7	32	5
Statistics																
Total number (thousands), %	5	2	11	5	15	7	32	5	63	72	5	22	53	9	65	9
Computer Science																
Total number (thousands), %	2	1	2	1	4	2	7	1	0	0	0	2	35	6	77	11
Other courses for majors																
Total number (thousands), %	41	19	34	14	31	14	105	16	18	9	8	39	58	10	74	11
Other undergraduate courses																
Total number (thousands), %	27	13	52	21	36	17	116	17	3	3	5	23	128	22	176	25

\* Arithmetic, high school algebra, geometry.

\*\*Percents are "column percents" describing relative enrollments within the respective Survey Groups of the different types of undergraduate courses.



**Table 4C: Undergraduate and Graduate Enrollments per Full-time Faculty Member, Fall 1996**

	GROUP						
	I	II	III	IV	V	M	B
Undergraduate course enrollments per full-time faculty member	88	110	108	69	41	112	100
Graduate course enrollments per full-time faculty member	4	4	4	14	19	3	0
Total course enrollments per full-time faculty member	93	114	112	83	59	115	100

**Table 4D: Undergraduate Junior/Senior Majors (hundreds), and Undergraduate Female Junior/Senior Majors (hundreds, Fall 1996, and Percentage Change in Majors, Fall 1995 to Fall 1996**

	GROUP							
	I	II	III	IV	V	M	B	I, II, III, M & B
Junior/senior majors								
Total number (hundreds)	58	51	47	10	43	214	255	626
Percentage change (%)	-6.6	0.8	-6.8	-15.1	13.8	1.0	-0.2	-0.9
Female junior/senior majors								
Total number (hundreds)	22	20	22	4	13	94	112	271
Percentage change (%)	-8.1	1.3	-4.7	-22.4	15.6	1.1	0.8	-0.3
Usable responses*								
Total number	39	41	54	33	7	113	380	627
Percentage (%)	83	75	76	57	29	48	38	45

\* The number of usable responses varies for different sections of the Departmental Profile survey. The response rates reported here apply to undergraduate majors data only. All counts are projected from the survey response to the respective Group as a whole.

**Graduate Student Profile**

Tables 5A, 5C, and 5D summarize population statistics for graduate students gathered by the 1996 Departmental Profile Survey. Table 5A indicates that the total number of full-time graduate students in mathematics departments (Groups I, II, III & M combined) declined by 4.8% from fall 1995 to fall 1996 and declined in every group except Groups M. Table 5C data show that the total number of female full-time graduate students in mathematics departments decreased by 3.5% and decreased in all groups except Groups M. For the fifth year in a row the Ph.D.-granting mathematics departments (Groups I, II & III combined) reported a decline in the number of full-time, first-year graduate students. The decline of 8.9% between fall 1995 and fall 1996 was more than the 2.0% decline reported last year between fall 1994 and fall 1995. In addition, the number

of full-time, first-year female graduate students in Ph.D.-granting mathematics departments decreased by 10.5% after a slight increase was reported last year for the first time in four years. Table 5D indicates a decline of 7.8% in the total number of U.S. citizen full-time mathematics graduate students from fall 1995 to fall 1996.

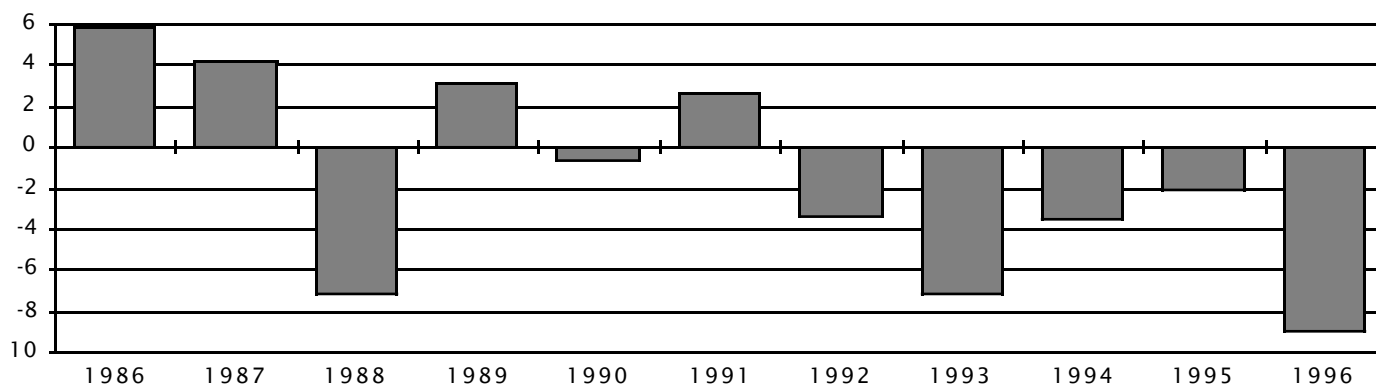
Tables 5A and 5D show declines in first-year graduate students from fall 1995 to fall 1996 for doctorate-granting mathematics departments. The five successive years of declines for the doctorate-granting mathematics departments are enough to suggest a decline in the number of new doctoral recipients four to five years hence. Table 5B presents the trend in annual percentage change of first-year graduate students in Ph.D.-granting mathematics departments during the years 1986 to 1996.

**Table 5A: Full-time Graduate Students, Fall 1996, and Percentage Change in Graduate Students, Fall 1995 to Fall 1996**

	GROUP							
	I	II	III	I, II & III	IV	V	M	I, II, III & M
Full-time graduate students								
Total number	3847	2839	2088	8774	3242	1743	3155	11929
Percentage change (%)	-6.3	-7.7	-5.6	-6.6	-4.3	-3.7	0.6	-4.8
First-year graduate students								
Total number (hundreds)	861	751	644	2256	867	464	1288	3544
Percentage change (%)	-2.2	-13.1	-12.0	-8.9	-16.7	-10.3	-3.2	-6.9
Usable responses*								
Total number	42	43	56	141	50	13	106	247
Percentage (%)	88	77	78	80	63	35	45	60

\* The number of usable responses varies for different sections of the Departmental Profile survey. The response rates reported here apply to Tables 5A through 5C on graduate student enrollments only. All counts are projected from the survey response to the respective Group as a whole.

**Table 5B: Annual Percentage Change in Full-time, First-year Graduate Students in Groups I, II & III Combined, 1986 to 1996**



**Table 5C: Full-time Female Graduate Students, Fall 1996, and Percentage Change in Female Graduate Students, Fall 1995 to Fall 1996**

	GROUP							
	I	II	III	I, II & III	IV	V	M	I, II, III & M
Full-time female graduate students								
Total number	919	919	701	2539	1368	471	1390	3929
Percentage change (%)	-7.2	-5.2	-8.2	-6.8	-0.1	-5.0	3.1	-3.5
First-year female graduate students								
Total number (hundreds)	198	280	256	734	386	167	559	1292
Percentage change (%)	-11.7	-10.8	-9.1	-10.5	-22.0	-4.8	-0.4	-6.4

**Table 5D: Full-time U.S. Citizen Graduate Students, Fall 1996, and Percentage Change in U.S. Citizen Graduate Students, Fall 1995 to Fall 1996**

	GROUP							
	I	II	III	I, II & III	IV	V	M	I, II, III & M
Full-time U.S. citizen grad. students								
Total number	2017	1832	1185	5035	1736	904	2153	7188
Percentage change (%)	-9.5	-8.0	-11.9	-9.6	-7.7	-4.2	-3.2	-7.8
First-year U.S. citizen grad. students								
Total number (hundreds)	477	516	381	1373	451	210	882	2255
Percentage change (%)	-3.9	-11.8	-15.2	-10.2	-26.4	-19.5	1.5	-6.0

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