

2005
Annual Survey
of the
Mathematical Sciences
in the United States
(AMS-ASA-IMS-MAA)

Third Report

Faculty Profile
Enrollment and Undergraduate Degrees Profile
Graduate Student Profile

*Ellen E. Kirkman
James W. Maxwell
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Introduction

The Annual Survey of the Mathematical Sciences collects information each year about departments, faculties, and students in the mathematical sciences at four-year colleges and universities in the United States. Definitions of the various groups surveyed in the Annual Survey can be found in the box on page 1355 of this report. We present information about the faculties and instructional programs at the undergraduate and graduate levels in these departments for the 2005–2006 academic year.

Information about departments was gathered on a questionnaire called the Departmental Profile. This questionnaire was mailed to all departments in Groups I, II, III, IV, and Va and to stratified random samples from Groups M and B. The percentage of the departments responding in each of the doctoral groups was greater than 94 percent. Prior to 2001, if doctoral departments did not respond, simple projections were made to the whole population using the data from those departments who did respond. Beginning in 2002, if a department did not return the Departmental Profile questionnaire but had returned one within the last three years, the data from the most recent questionnaire was used.

The Departmental Profile questionnaire is mailed to a stratified random sample of departments drawn from each of Groups M and B, and standard statistical projections are made using the data from the respondents. The stratification for Groups M and B is based on the enrollment of the school. The response rates for Groups M and B were 59% and 43%,

This Third Report of the 2005 Annual Survey gives information about faculty size, departmental enrollments, majors, and graduate students for departments of mathematical sciences in four-year colleges and universities in the United States. Prior to 2000, these data were included as part of the Second Report.

The 2005 Annual Survey represents the forty-ninth in an annual series begun in 1957 by the American Mathematical Society. The 2005 Survey is under the direction of the Data Committee, a joint committee of the American Mathematical Society, the American Statistical Association, the Institute of Mathematical Statistics, the Society of Industrial and Applied Mathematics, and the Mathematical Association of America. The current members of this committee are Richard Cleary, Amy Cohen-Corwin, Donald M. Davis, Nicholas M. Ercolani, Abbe H. Herzog, Donald R. King, Ellen E. Kirkman (chair), David J. Lutzer, James W. Maxwell (ex officio), Peter March, Polly Phipps, David E. Rohrlich, and Henry Schenck. The committee is assisted by AMS survey analyst Colleen A. Rose. Comments or suggestions regarding this Survey Report may be directed to the committee.

respectively. For the fourth year, standard errors are reported for several of the more important projections made in Groups M and B. The box on page 1346 discusses these standard errors in more detail.

The careful reader will note that a row or column total may differ slightly from the sum of the individual entries. All the table entries are the rounded values of the individual projections associated with each entry, and the differences are the result of this rounding (as the sum of rounded numbers is not always the same as the rounded sum).

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Highlights

The estimated number of full-time faculty in all mathematics groups combined is 21,903 (with a standard error of 597), up from 20,224 (with a standard error of 308) last year. The number of nondoctoral full-time faculty is estimated at 3,804, up from 3,673 last year. The estimated number of part-time faculty is 6,526, down from 8,089 last year. The number of full-time doctoral non-tenure-track faculty (including postdoctoral appointments) is estimated at 2,180, up from 2,064 last year. Women comprise 26% of the full-time faculty in mathematics. The size of the standard error makes it possible that some of the changes observed are due to sampling error.

The estimated total number of full-time doctoral positions under recruitment in the mathematics groups combined during 2004–05 is down to 1,700 from 1,721 last year (a decrease of 1%). Of these 1,700 full-time positions, 1,176 were tenured/tenure-track, up from 1,128 last year (an increase of 4%). Of the 1,176 full-time tenured/tenure-track doctoral positions, 1,431 were open to new doctorates, up from 1,423 last year.

The estimated total number of full-time doctoral positions filled with a doctoral hire in mathematics departments is up to 1,385 from 1,344 last year (an increase of 3%). The total number of tenured/tenure-track doctoral hires is up 24% in Groups I, II, III, and Va combined (to 266 from 214 last year), and down 7% in Groups M and B combined (to 562 from 606 last year).

The estimated total number of new doctoral hires in mathematics departments is down 7% (to 547 from 590) this year from last year: it is up 4% (to 241 from 232) in Groups I, II, III, and Va combined; and down 15% (to 306 from 358) in Groups M and B combined. The number of new doctoral tenured/tenure-track hires is down 7% (to 295 from 318): it is up 76% (to 65 from 37) in Groups I, II, III, and Va combined; and down 18% (to 230 from 281) in Groups M and B combined.

The estimated total number of not-new doctoral hires into tenured/tenure-track positions is up 6% in the mathematics groups combined. In Groups I, II, III, and Va combined, 61% of those hired into tenured/tenure-track positions had held a non-tenure-track position the previous year (52% held a postdoctoral position); in Groups M & B combined, these percentages were 32% and 15%, respectively.

The estimated number of full-time graduate students in mathematics departments in fall 2005 increased to 13,068 from 12,853 last year, but declined to 10,565 from 10,707 in the doctoral mathematics departments.

Remarks on Statistical Procedures

This report is based on information gathered from departments of mathematical sciences in the U.S., separated into groups by highest degree granted as defined on page 1357. Groups for doctoral-granting departments are I (Public), I (Private), II, III, IV, and Va. Groups M and B consist of those departments offering master's and bachelor's degrees respectively.

While the questionnaire on which this report is based is sent to every doctoral department, it is sent to a stratified random sample in Group M and B departments.

The response rate is typically between 90 and 100 percent for the doctoral groups. Prior to last year, simple projections were made using the questionnaires that were returned to get estimated totals for the entire population. After a couple of years of experimentation, a new procedure was begun for the 2001 survey. If a doctoral department did not return its questionnaire this year but had returned one within the past three years, those numbers were used as its response for the current year. This procedure will give us even more accurate estimates than we have gotten in the past.

The stratified random sampling procedures used for Groups M and B were put in place four years ago. Beginning with the 2001 Annual Survey, standard errors were calculated for some of the key estimates. Standard errors are calculated using the variability in the data and can be used to crudely measure how close our estimate is to the true value for the population. As an example, the number of full-time faculty in Group M is estimated at 4,522, with a standard error of 138. This means the actual number of full-time faculty in Group M is most likely between 4,522 plus or minus two standard errors, or between 4,246 and 4,798. This is much more informative than simply giving the estimate of 4,522.

Estimates are also given for parameters that are totals from all groups, such as the total number of full-time faculty. The values given for the doctoral groups are assumed to be the true parameters for these groups, because they are not sampled and hence are not subject to sampling variability. The only variability in a total of several groups comes from the sampling for Groups M and B. Using the standard errors for M and B, it is possible to calculate a standard error for the total. For example, an estimate of the total number of full-time faculty in all groups but group IV is 21,903, with a standard error of 597.

Standard errors, when calculated for an estimate, appear in the tables in parentheses underneath the estimate.

Table 1A: Total Faculty, Fall 2005

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
Total full-time faculty (Standard error)	1835	976	2542	2154	280	7787	4522 (138)	9594 (580)	21903 (597)	1626
Doctoral full-time faculty	1759	967	2272	1827	266	7091	3616	7392	18099	1563
Tenured	1167	563	1567	1274	172	4743	2377	4697	11816	839
Untenured, tenure-track	190	80	289	355	29	943	974	2179	4096	348
Postdoctoral appointments	252	196	241	32	43	764	5	48	817	126
Other non-tenure-track (Standard error)	150	128	171	166	22	637	258 (25)	468 (71)	1363 (75)	250
Nondoctoral full-time faculty	76	9	270	327	14	696	906	2202	3804	63
Total part-time faculty (Standard error)	121	51	347	515	20	1054	1842 (198)	3630 (272)	6526 (337)	254

Faculty Profile

The Departmental Profile, sent in fall 2005 to mathematical sciences departments at four-year colleges and universities as part of the Annual Survey, gathered information about faculties at these schools in fall 2005; this section presents some of that data. The 2005 First Report presented data collected earlier about faculty salaries (pages 239–44 of the February 2006 issue of the *Notices of the AMS*).

Faculty

Table 1A gives the number of faculty for different categories of faculty broken down by group. Table 1B gives the same information for females only. Table 1C gives some percentages based on the information in Tables 1A and 1B. The estimated total number of full-time faculty in the mathematics groups (Groups I, II, III, Va, M, and B combined) is 21,903, up 1,679 (an 8% increase) from last year, with a standard error of 597. We can be quite confident that the actual total number of faculty in these groups is in the interval 21,903 plus or minus 1,194. The doctoral mathematics departments I, II, III, and Va are up 167 full-time faculty members, Group M is up 298 faculty members, and Group B is up 1,214. Since the standard errors for the total number of full-time faculty in Groups M and B are 138 and 580 respectively, these increases exceed the chance variability we expect with standard errors of 138 and 580 and would indicate real increases. The standard error for the total number of full-time faculty in Group B was 278 last year, so this year's estimates that include Group B are more variable than last year's. The total faculty size in the statistics group (Group IV) is up to 1,626 this year from 1,597 last year (a 2% increase). The numbers

of full-time faculty and of doctoral full-time faculty are up in each group, except Group Va.

The number of non-tenure-track doctoral full-time faculty and the number of part-time faculty in mathematics departments had been increasing in recent years, a disturbing trend highlighted in "Staffing shifts in mathematical sciences departments, 1990–2000" (David J. Lutzer and James W. Maxwell, *Notices*, June/July 2003, pages 683–6). More recently the number of part-time faculty has declined, but the number of non-tenure-track doctoral full-time faculty (including postdoctoral positions) has continued to increase. This year the estimated number of part-time faculty in Groups I, II, III, Va, B, and M combined is down to 6,526 (with a standard error of 337) from 8,089 last year (a 24% increase), and the number of non-tenure-track doctoral faculty (including postdoctoral positions) is estimated at 2,180 this year, up 6% from 2,064 last year. This year the number of part-time faculty is down from last year in each group, except Group IV, and the number of non-tenure-track doctoral faculty is up in each group, except Group Va and Group M. This year in Group B the estimated number of full-time faculty is up by 1,214 (the standard error is 580) to 9,594 (the highest ever reported), the estimated number of non-tenure-track doctoral faculty is up by 44, and the estimated number of part-time faculty is down by 1,216 (the standard error is 272) to 3,630 (a 25% decrease); while in Groups I, II, III, and Va combined the number of full-time faculty is up by 167, the number of non-tenure-track doctoral faculty is up by 87 (from 1,314 to 1,401) and number of part-time faculty decreased 22% (from 1,355 to 1,054). In Group IV the number of part-time faculty increased from 246 last year to 254 this year, and the number

Table 1B: Female Faculty, Fall 2005

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
Female full-time faculty <i>(Standard error)</i>	251	116	489	498	45	1399	1382 <i>(66)</i>	2857 <i>(230)</i>	5638 <i>(239)</i>	439
Doctoral full-time faculty	205	113	316	315	36	985	883	1859	3728	403
Tenured	86	34	127	159	18	424	474	1080	1977	141
Untenured, tenure-track	35	15	74	95	4	223	314	614	1151	124
Postdoctoral appointments	50	35	48	7	8	148	2	41	191	40
Other non-tenure-track	34	29	67	54	6	190	93	125	409	97
Nondoctoral full-time faculty	46	3	173	183	9	414	499	998	1911	36
Female part-time faculty	50	8	130	199	3	390	682	1503	2576	99

Table 1C: Full-Time Faculty, Fall 2005

	GROUP								
	I Public	I Private	II	III	Va	M	B	IV	TOTAL
Full-time faculty									
Number	1835	976	2542	2154	280	4522	9594	1626	23529
Percentage of total full-time faculty	8%	4%	11%	9%	1%	19%	41%	7%	100%
Female full-time faculty									
Number	251	116	489	498	45	1382	2857	439	6078
Percentage of female full-time faculty	4%	2%	8%	8%	1%	23%	47%	7%	100%
Female full-time faculty Percentage female full-time faculty by group	14%	12%	19%	23%	16%	31%	30%	27%	26%

Table 1D: Faculty Counts and Percentage Female, Fall 1999-2005

	1999	2000	2001	2002	2003	2004	2005
Groups I, II, III, & Va							
Doctoral full-time faculty							
Tenured/tenure-track	5765	5568	5598	5616	5559	5604	5686
Percentage female	9%	9%	10%	10%	10%	11%	11%
Non-tenure-track	1014	993	1233	1274	1343	1314	1401
Percentage female	22%	21%	21%	23%	25%	25%	24%
Part-time faculty	1217	1399	1467	1504	1389	1355	1054
Percentage female	38%	37%	38%	35%	35%	37%	37%
Group M							
Doctoral full-time faculty							
Tenured/tenure-track	3599	3670	3191	3188	3005	3113	3351
Percentage female	20%	21%	23%	22%	22%	23%	24%
Non-tenure-track	146	262	183	276	230	277	263
Percentage female	56%	29%	24%	39%	33%	48%	36%
Part-time faculty	1768	1906	2323	2393	1952	1888	1842
Percentage female	43%	35%	36%	37%	37%	37%	37%
Group B							
Doctoral full-time faculty							
Tenured/tenure-track	4580	5486	5665	5569	6172	5770	6875
Percentage female	25%	22%	24%	23%	26%	25%	25%
Non-tenure-track	514	407	504	507	460	472	516
Percentage female	24%	30%	29%	36%	20%	29%	32%
Part-time faculty	3298	3580	4197	4117	3997	4846	3630
Percentage female	41%	40%	43%	45%	42%	44%	41%

of non-tenure-track doctoral faculty increased from 364 last year to 376 this year due to the increased number of other non-tenure-track positions. Another category that has been increasing the past few years is the nondoctoral full-time faculty; this year this group is estimated at 3,804 in Groups I, II, III, Va, M, and B combined, up from 3,673 last year (a 4% increase).

Table 1D gives a seven-year history of tenure/tenure-track, non-tenure-track, and part-time faculty for Groups I, II, III, and Va combined, for Group M, and for Group B. Also shown for each number in this table is the percentage of females. Comparing the values over the last seven years, we see that in Groups I, II, III, and Va combined, the number of tenured/tenure-track appointments is down 1%, the number of non-tenure-track doctoral appointments is up 38%, and the number of part-time faculty is down 13%. Over the last seven years in Group M the estimated number of tenured/tenure-track appointments is down 7%, the estimated number of non-tenure-track doctoral appointments is up 80%, and the estimated number of part-time faculty is up 4%; and in Group B, the estimated number of tenured/tenure-track appointments is up 50%; the estimated number of non-tenure-track doctoral appointments is up 0.4%, and the number of part-time faculty is up 10%.

Table 1E gives a summary of the various types of faculty found in departments of mathematical sciences by sex and group.

Tables 1F and 1G give more information about two types of faculty: full-time faculty without a doctorate and part-time faculty. The top half of Table 1F is a somewhat condensed version of the doctoral full-time faculty in Table 1A broken down by sex. The bottom half of Table 1F shows this same information for the 3,805 full-time faculty who do not have doctoral degrees. The majority of these faculty, 3,109 (82%), are found in Groups M and B departments. Table 1G shows the part-time faculty broken down by sex and whether they have a doctoral degree. Comparing Table 1G to last

Table 1E: Summary of Full-Time and Part-Time Faculty, Fall 2005

	GROUP					
	I, II, III, & Va		M & B		IV	
	Male	Female	Male	Female	Male	Female
Full-time faculty	6388	1399	9877	4239	1187	439
Percentage	82%	18%	70%	30%	73%	27%
Doctoral full-time faculty	6102	985	8265	2743	1160	403
Percentage	86%	14%	75%	25%	74%	26%
Tenured	4319	424	5520	1553	698	141
Percentage	91%	9%	78%	22%	83%	17%
Untenured, tenure-track	720	223	2225	928	224	124
Percentage	76%	24%	71%	29%	64%	36%
Postdoctoral appointments	616	148	10	43	86	40
Percentage	81%	19%	19%	81%	68%	32%
Other non-tenure-track	447	190	508	219	152	97
Percentage	70%	30%	70%	30%	61%	39%
Nondoctoral full-time faculty	282	414	1612	1497	27	36
Percentage	41%	59%	52%	48%	43%	57%
Part-time faculty	664	390	3286	2186	154	99
Percentage	63%	37%	60%	40%	61%	39%

Table 1F: Doctoral and Nondoctoral Full-Time Faculty, Fall 2005

	GROUP					
	I, II, III, & Va		M & B		TOTAL	
	Male	Female	Male	Female	Male	Female
Doctoral full-time faculty	6102	985	8265	2743	14367	3728
Tenured	4319	424	5520	1553	9839	1977
Untenured, tenure-track	720	223	2225	928	2945	1151
Postdoctoral appointments	616	148	10	43	626	191
Other non-tenure-track	447	190	508	219	955	409
Nondoctoral full-time faculty	282	414	1612	1497	1894	1911
Tenured	13	7	701	345	714	352
Untenured, tenure-track	1	2	183	97	184	99
Postdoctoral appointments	3	1	2	0	5	1
Other non-tenure-track	268	405	728	1055	996	1460

Table 1G: Part-Time Faculty, Fall 2005

	GROUP				
	I, II, III, & Va		M & B		TOTAL
	Male	Female	Male	Female	
Doctoral part-time faculty	320	96	906	311	1633
Nondoctoral part-time faculty	344	294	2380	1875	4892
TOTAL	664	390	3286	2186	6526

year's table, we see that the biggest decline in part-time faculty is in nondoctoral part-time faculty (down 24% from 6,416 last year to 4,892 this year).

Table 2A: Recruitment of Doctoral Faculty, Fall 2005

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
Posted Doctoral Positions										
Total number ¹ (Standard error)	176	127	191	165	21	680	391 (36)	630 (81)	1700 (89)	177
Tenured/tenure-track	79	39	115	130	14	376	320	480	1176	146
Open to new doctoral recipients	113	96	151	137	18	514	359	559	1431	131
Tenured/tenure-track	29	16	86	111	12	254	299	417	969	115
Open at assoc/full level	23	15	27	31	4	100	82	77	259	51
Reported Hires for Above										
Total number	158	115	167	137	13	590	332	516	1438	124
Male doctoral hires	133	94	129	88	9	454	207	312	972	85
Tenured/tenure-track	50	24	72	59	3	208	161	187	556	59
Female doctoral hires	23	21	34	39	4	121	105	188	413	34
Tenured/tenure-track	8	5	16	27	3	58	85	129	272	30
Male temporary hires	2	0	4	9	0	15	15	8	38	5
Female temporary hires	0	0	0	0	0	0	6	9	15	0
Total new doctoral hires	75	61	61	42	3	241	115	191	547	61
Male new doctoral hires	60	48	44	20	1	174	62	151	387	40
Tenured/tenure-track	3	2	14	16	1	37	50	101	189	25
Female new doctoral hires	15	12	17	22	1	67	53	40	160	20
Tenured/tenure-track	1	2	8	15	1	28	44	34	106	17
Unfilled positions	18	12	25	28	8	90	59	113	262	53

¹ Number of full-time doctoral positions under recruitment in 2003–2004 to be filled for 2004–2005.

Table 2B: A Summary of Recruitment of Doctoral Faculty, Fall 2005

	GROUP		
	I, II, III, & Va	M & B	IV
Posted Doctoral Positions			
Total number	680	1020	177
Tenured/tenure-track	376	799	146
Open to new doctoral recipients	514	917	131
Tenured/tenure-track	254	716	115
Reported Hires for Above			
Total new doctoral hires ¹	241	306	61
Tenured/tenure-track	65	230	42
Male	174	213	40
Tenured/tenure-track	37	151	25
Female	67	93	20
Tenured/tenure-track	28	79	17
Total other doctoral hires	333	505	59
Tenured/tenure-track	201	332	47
Male	280	305	45
Tenured/tenure-track	170	197	34
Female	54	200	14
Tenured/tenure-track	30	135	12

¹ New doctoral hires are individuals who have held a doctorate for less than one year at the time of hiring.

Faculty Profile for Females

Table 1B gives a complete breakdown of all categories of female faculty by group and shows increasing estimated numbers of female faculty in most categories. The estimated total number of full-time faculty in Groups I, II, III, Va, M, and B combined, for 2005–2006 is 21,903, of which 5,638 (26%) are females, up from 5,302 (26%) last year. In the B group

the estimated number of doctoral female faculty increased to 1,859 from 1,568 last year, of tenured female faculty increased from 912 last year to 1,080 this year, of untenured tenure-track female faculty increased from 518 last year to 614 this year (a 19% increase), and of non-tenure-track (including post-doctoral appointments) doctoral female faculty increased from 139 last year to 166 this year. In the M group estimated doctoral full-time female faculty increased from 853 last year to 883 this year; in Groups I, II, III, and Va combined doctoral full-time female faculty increased from 956 to 985 and tenured female faculty declined from 431 to 424; and in Group IV doctoral full-time female faculty increased from 383 to 403.

Table 1C shows the number and percentage of all full-time and female full-time faculty that fall into each group for fall 2005. The number of faculty in each group and the percentage who are female are given in the bottom section of Table 1C. The number of females as a percentage of full-time faculty varies considerably among the groups, from 12% for Group I Private to 31% for Group M. Note: In Table 1C the percentages for each group in rows 2 and 4 are of the row totals. The percentages in row 5 are column percentages using the numbers in rows 1 and 3.

Table 1D contains information about the percentage of female tenure/tenure-track, non-tenure-track doctoral full-time faculty, and part-time faculty for the years 1999 to 2005 for Groups I, II, III, and Va combined, M, and B. This table includes the total number for each category as well as the percentage

**Table 2C: Positions Posted and Filled,
Fall 2005**

Positions	GROUP		
	I, II, III, & Va	M & B	IV
Posted positions opened to new doctoral recipients	514	917	131
% tenured/tenure-track	49%	78%	88%
Positions filled by new doctoral recipients	241	306	61
% tenured/tenure-track	27%	75%	69%
Positions filled by not-new doctoral recipients ¹	333	505	59
% tenured/tenure-track	60%	66%	79%

¹Not-new doctoral recipients are individuals who have held their doctorate for more than one year.

of females for each category. While this year females comprise 26% of the full-time faculty, they are a larger percentage of the part-time faculty in all three categories.

Table 1E gives the male/female breakdown by count and percentage for Groups I, II, III, and Va combined, Groups M and B combined, and Group IV for various categories of faculty. It shows that the percentage of women is generally higher in statistics (Group IV) than in the doctoral mathematics groups (Groups I, II, III, and Va combined) and that the percentage of tenured faculty who are women is highest in Groups M and B combined.

Table 1F shows that of the 3,805 nondoctoral full-time faculty in Groups I, II, III, Va, M, and B combined, 1,911 (50%) are females. In Table 1G we see that in

these same groups there are 6,526 part-time faculty, of which 2,576 (39%) are females.

Faculty Recruitment

Table 2A contains detailed information on the number of full-time doctoral faculty positions in mathematical sciences departments under recruitment in 2004–2005 for employment beginning in the academic year 2005–2006. Among mathematics departments (Groups I, II, III, Va, M, and B), 1,700 positions were under

recruitment in 2004–2005 for employment beginning in the academic year 2005–2006, down 1% compared to last year. Of those 1,700 positions, 1,431 (84%) were available to new doctoral recipients, and of those 1,431 positions, 969 (68%) were tenured/tenure-track positions. The 969 tenured/tenure-track positions open to new doctoral recipients is up 5% from the 919 such positions under recruitment in 2003–2004. The total number of tenured/tenure-track full-time doctoral positions under recruitment in Groups I, II, III, Va, M, and B combined is 1,176, up from last year's 1,128 (an increase of 4%). In Groups I, II, III, and Va combined, the total number of posted doctoral positions open at the associate/full level decreased from 110 last year to 100 this year.

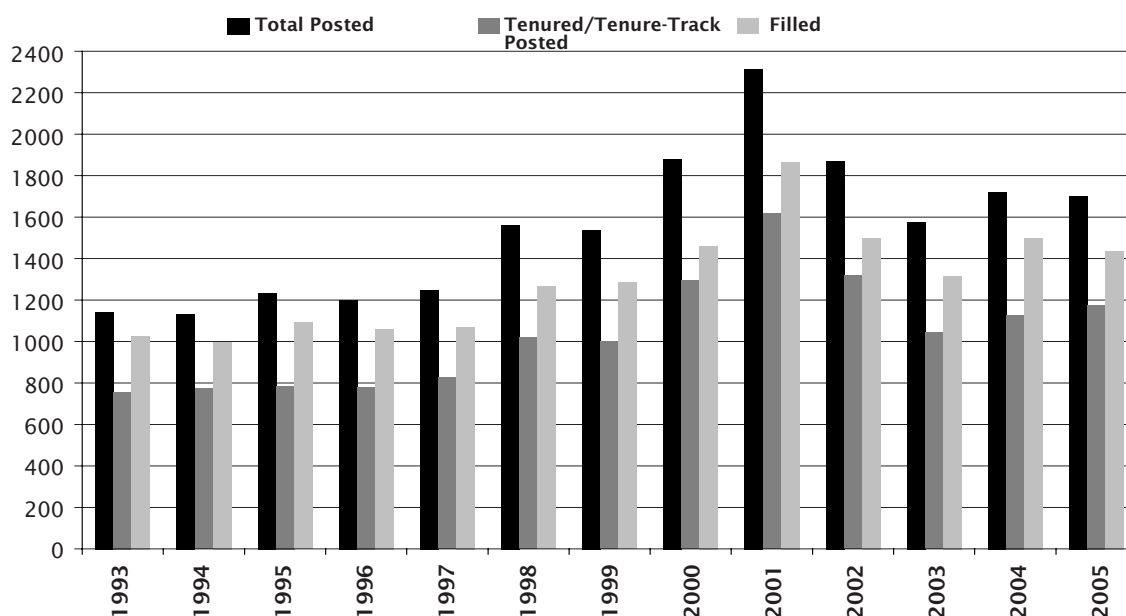
**Figure 1: Number of Full-Time Doctoral Positions under Recruitment
Groups I, II, III, Va, M, & B Combined, Fall 1993 to Fall 2005**

Table 3: Faculty Attrition,¹ Fall 2005

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
Full-time faculty who retired or died										
Total number (Standard error)	38	8	52	41	1	140	140 (23)	220 (51)	500 (56)	23
Percentage	2.0%	0.9%	2.0%	1.9%	0.5%	1.8%	3.1%	2.3%	2.3%	1.4%

¹ Number and percentage of full-time faculty who were in the department in fall 2004 but were reported to have retired or died by fall 2005.

Figure 2: Faculty Attrition

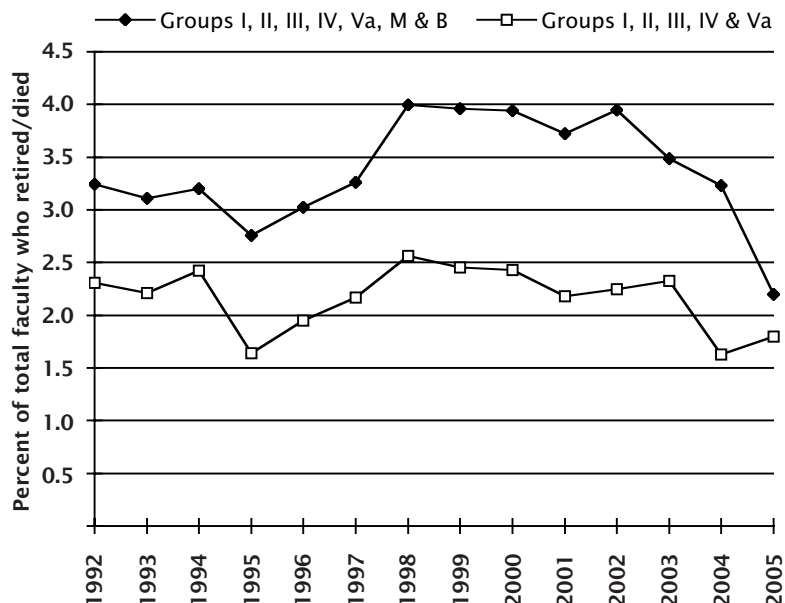


Table 2B condenses the information in Table 2A. It also reorganizes the doctoral hires into one section for new doctoral hires and another for other doctoral hires (so excludes posted doctoral positions that were temporarily filled with a person without a doctorate). Table 2C is derived from Table 2B, with the percentage of the filled positions that were tenured/tenure-track included in the table.

From Table 2B we find that the total number of full-time doctoral positions filled in mathematics departments (Groups I, II, III, Va, M, and B combined) is up to 1,385 from 1,344 last year (an increase of 3%); it is up 7% in Groups I, II, III, and Va combined and 0.1% in Groups B and M combined. This year Groups I, II, III, and Va combined filled 574 doctoral positions, of which 266 (46%) were tenured/tenure-track positions. Last year these same groups filled 534 doctoral positions, of which 214 (40%) were tenured/tenure-track. Groups M and B combined filled 811 doctoral positions this year, and 562 (69%) of these were tenured/tenure-track positions. Last year these two groups filled 810 doctoral positions, of which 606 (75%) were tenured/tenure-track.

Beginning with the 2004 Annual Survey, departments were asked to report the number of doctoral hires in tenured/tenure-track positions filled by individuals who held a non-tenure-track position the previous year and of those, how many were postdoctoral appointments. For Groups I, II, III, and Va combined, 161 (61% of the 266 tenure-track hires) individuals reported having held a non-tenure-track position the previous year, with 137 (52%) individuals having held a postdoctoral appointment the previous year; last year 112 (52%) were filled by individuals who held a postdoctoral appointment the previous year. For Groups M and B combined, 181 (32% of the 562 tenure-track hires) individuals reported having held a non-tenure-track position the previous year, with 83 (15%) individuals having held a postdoctoral appointment the previous year; last year 127 (21%) were filled by individuals who held a postdoctoral appointment the previous year.

This year the estimated total number of new doctoral hires in mathematics departments is down 7% (547 from 590) from last year; it is up 4% (to 241 from 232) in Groups I, II, III, and Va combined, and down 15% (to 306 from 358) in Groups M and B combined. The number of new doctoral tenured/tenure-track hires in the mathematics groups combined is down 7% (to 295 from 318); it is up 76% (to 65 from 37) in Groups I, II, III, and Va combined, and down 18% (to 230 from 281) in Groups M and B combined. From Table 2C we see that in Groups I, II, III, and Va 27% of the hires of new doctoral recipients are in tenured/tenure-track positions (last year it was 16%), while in Groups M and B 75% of the new doctoral hires are in tenured/tenure-track positions (last year it was 79%).

The estimated number of not-new doctoral hires in mathematics departments is 838, up from 754 last year. The estimated total of not-new doctoral hires into tenured/tenure-track positions is up 6% in all the mathematics groups combined; it is up in Groups I, II, III, and Va combined (to 201 from 177 last year), and up in Groups M and B combined (332 from 325). This year the percentage of not-new doctoral recipients among those hired has declined in both the doctoral and non-doctoral mathematics groups; in Groups I, II, III, and Va combined 42% of the positions hired went to not-new doctoral recipients (last year 57%), while in Groups M and B combined 38% of the

Table 4A: Total Undergraduate Course Enrollments (thousands)

Fall	GROUP								Total
	I Public	I Private	II	III	Va	M	B	IV	
2000	175	47	279	241	13	526	729	77	2087
2001	176	42	279	246	12	513	743	81	2092
2002	187	41	275	250	16	507	774	76	2125
2003	185	41	283	255	17	498	774	72	2125
2004	159	42	277	261	16	492	782	72	2101
2005 <i>(Standard error)</i>	177	43	273	249	12	509 <i>(19)</i>	872 <i>(57)</i>	70	2205 <i>(60)</i>

Table 4B: Total Graduate Course Enrollments (thousands)

Fall	GROUP							Total
	I Public	I Private	II	III	Va	M	IV	
2000	7	4	9	9	2	14	24	69
2001	7	5	9	9	2	14	26	72
2002	10	4	11	10	3	12	29	79
2003	10	5	11	11	2	16	31	87
2004	9	4	12	10	2	12	31	81
2005 <i>(Standard error)</i>	10	4	13	9	2	16 <i>(2)</i>	29	84 <i>(2)</i>

Table 4C: Undergraduate and Graduate Enrollments per Full-Time Faculty Member, Fall 2005

	GROUP								
	I Public	I Private	II	III	Va	M	B	IV	
Undergraduate Course Enrollments Number per full-time faculty member	96	44	108	116	43	113	91	43	
Graduate Course Enrollments Number per full-time faculty member	5	5	5	4	7	4	—	18	

Table 4D: Undergraduate Enrollments per Full-Time Faculty Member

Fall	GROUP							
	I Public	I Private	II	III	Va	M	B	IV
2000	107	52	117	119	39	110	95	56
2001	101	47	114	120	41	118	94	57
2002	107	43	114	121	50	117	95	55
2003	104	42	113	121	46	121	89	46
2004	90	44	113	126	49	120	89	49
2005	96	44	108	116	43	113	91	43

positions hired went to not-new doctoral recipients (last year 56%).

From Table 2B we find that of the new doctoral recipients hired in Groups I, II, III, and Va combined, 21% of the males and 42% of the females took tenured/tenure-track positions. For new doctoral recipients hired in Groups M and B combined, 71% of the males and 85% of the females took tenured/tenure-track positions.

Figure 1 shows the number of full-time doctoral positions available in all groups combined except Group IV, as well as the number of those that were

Table 5A: Undergraduate Degrees Awarded (hundreds), Fall 2005

	GROUP								
	I Public	I Private	II	III	Va	M	B	I, II, III, Va, M, & B	IV
Total Undergraduate Degrees Awarded <i>(Standard error)</i>	25	10	21	18	4	41 (3)	115 (8)	234 (8)	7
Statistics only	0	0	0	1	0	2	3	7	4
Computer science only	1	0	0	2	0	2	53	59	0
Female Undergraduate Degrees Awarded	9	3	8	7	1	18	47	93	3
Statistics only	0	0	0	1	0	1	1	3	2
Computer science only	0	0	0	0	0	1	9	11	0

Table 5B: Undergraduate Degrees Awarded (hundreds)

Fall	2002	2003	2004	2005
Total Undergraduate Degrees Awarded	217	220	244	243
Female Undergraduate Degrees Awarded	91	90	102	93
Percentage female	42%	41%	42%	40%

tenured/tenure-track and the number unfilled for the years 1993 to 2005. The number of available positions and the number of tenured/tenure-track positions steadily increased reaching a maximum in 2001; this number declined for the next two years then slightly increased; this year the number of available positions decreased slightly and the number of tenured/tenure-track positions increased.

This year while the number of positions under recruitment decreased 1% in mathematics; those in statistics (Group IV) decreased 2% (to 177 from 180), the number of tenure-track positions under recruitment is up 12% (to 146 from 130), and the number of tenure-track positions open to new doctoral recipients under recruitment is up to 115 from 95. The number of hires of new doctoral recipients is 61 (42 tenure-track) this year and 65 (45 tenure-track) last year, down 6%

(6%) respectively. The number of not-new doctoral hires is 59 (47 tenure-track) this year and 54 (27 tenure-track) last year. Females were 40% of the new doctoral tenure-track hires and 26% of the not-new doctoral tenure-track hires; last year these percentages were 51% and 37%, respectively.

Faculty Attrition

Table 3 displays losses of full-time mathematical sciences faculty due to retirements and deaths over the past year for each departmental grouping. The fall 2005 mathematics faculty attrition rate for Groups I, II, III, Va, M, and B combined is 2.3%, and in statistics (Group IV) it is 1.4%. For fall 2005, Group Va had the lowest attrition rate at 0.5%, while Group M the highest at 3.1%.

Figure 2 shows the trends in these attrition rates between 1992 and 2005. While the rates vary from group to group and from year to year within each group, in the early 1990s the dominant trend was one of increasing attrition. Then in the late 1990s the trend changed to one of reduced attrition. This year while in Groups I, II, III, IV, and Va combined the rate of attrition slightly increased, when combined with Groups M and B the rate dropped significantly. This is mainly due to the drop in attrition in Group B.

Table 5C: Master's Degrees Awarded (hundreds), Fall 2005

	GROUP								
	I Public	I Private	II	III	Va	M	I, II, III, Va, M, & B	IV	
Total Master's Degrees Awarded <i>(Standard error)</i>	5	3	6	8	2	18 (3)	43 (3)	13	
Statistics only	0	0	1	1	0	3	6	11	
Computer science only	0	0	0	1	0	2	2	0	
Female Master's Degrees Awarded	2	1	3	3	1	8	17	7	
Statistics only	0	0	0	1	0	2	3	5	
Computer science only	0	0	0	1	0	2	2	0	

Enrollment Profile and Degrees Awarded Profile

Enrollment

The Departmental Profile Survey obtained information about enrollments and numbers of undergraduate degrees awarded in mathematical sciences departments. Tables 4A and 4B give the total undergraduate and total graduate enrollments in mathematics courses in fall 2005 for each group that is part of the Annual Survey. Each enrollment in this and other tables in this section is projected from schools responding to the survey, as discussed on page 1346. In fall 2005, for the seventh year the projections for Groups M and B were made from those schools responding in the stratified random sample for each of these groups. This makes it possible to calculate standard errors for the estimated enrollments for these groups and for the estimated total enrollment for all groups. These

standard errors, available for the fifth year, are also found in Table 4A. The estimated total undergraduate enrollment in fall 2005 for all groups combined is 2,205,000, with a standard error of 60,000, indicating that the actual total enrollment is likely within 2,205,000 plus or minus 120,000. Table 4A gives these totals for fall 2000 to fall 2005. Total undergraduate enrollments for all groups combined is up 5% from last year; the total is down 25% in Group Va.

Table 4B gives total graduate enrollments for fall 2000 to fall 2005. Total graduate course enrollments for all groups combined is up 4% from last year; the total is up 33% for Group M, down 6% in Group IV, and down 10% in Group III.

Looking at the historical data on enrollment numbers presented in Tables 4A and 4B for fall 2000 to fall 2005, one sees a trend of general increasing undergraduate and graduate enrollments.

Table 6A: Graduate Students, Fall 2005

	GROUP								
	I Public	I Private	II	III	Va	I, II, III, & Va	M	I, II, III, Va, & M	IV
Total Graduate Students									
Full-time	2901	1435	3226	2322	681	10565	2503	13068	4310
<i>(Standard error)</i>							(247)	(247)	
First-year full-time	638	420	913	714	147	2832	921	3753	1345
Part-time	170	196	409	896	83	1764	3181	4945	749
<i>(Standard error)</i>							(341)	(341)	
Female Graduate Students									
Full-time	711	328	1020	873	179	3111	941	4052	2076
First-year full-time	155	100	297	260	39	851	345	1196	660
Part-time	72	40	185	367	16	677	1621	2298	389
U.S. Citizen Graduate Students									
Full-time	1598	701	1996	1242	387	5915	1842	7756	1572
<i>(Standard error)</i>							(271)	(271)	
First-year full-time	361	182	590	434	90	1657	716	2373	550
Part-time	138	132	343	738	88	1439	2811	4250	451
<i>(Standard error)</i>							(304)	(304)	

Table 6B: Full-Time Graduate Students in Groups I, II, III, & Va by Sex and Citizenship

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total full-time graduate students	9476	9003	8791	8838	9637	9361	9972	10444	10707	10565
Female	2760	2691	2770	2766	3016	2899	3136	3215	3245	3111
% Female	29%	30%	32%	31%	31%	31%	31%	31%	30%	29%
% U.S. citizen	57%	55%	55%	53%	53%	49%	51%	54%	55%	56%
Total first-year graduate students	2443	2386	2458	2664	2839	2875	2996	2711	3004	2832
Female	795	836	859	866	879	1014	1038	902	983	851
% Female	33%	35%	35%	33%	31%	35%	35%	33%	33%	30%
% U.S. citizen	60%	55%	55%	53%	54%	53%	54%	56%	60%	59%

Table 4C gives the undergraduate enrollments per faculty member and the graduate enrollments per faculty member for each group. Table 4D gives the undergraduate enrollments per faculty member in each group for fall 2000 to fall 2005. Table 4D on undergraduate enrollments per faculty member shows a slightly downward trend over the period shown.

Beginning with the 2002 survey, the Departmental Profile form no longer requests a breakdown of the total undergraduate enrollments into eight subcategories of courses. For a comprehensive survey of specific undergraduate courses, please refer to the report of the 2000 CBMS survey, *Statistical Abstract of Undergraduate Programs in the Mathematical Sciences in the U.S.: Fall 2000 CBMS Survey* (American Mathematical Society, Providence, RI, 2002). This publication is available on the AMS website at www.ams.org/cbms/.

Undergraduate and Master's Degrees

Beginning with the 2004 Annual Survey, departments were asked to report the number of master's degrees awarded, as well as undergraduate degrees awarded, during 2003-2004. Tables 5A and 5C give the number of undergraduate and master's degrees awarded in 2004-2005, the number of each that are female, the number that are in computer science, and beginning with the 2005 Annual Survey, the number that are statistics for each group. The number of master's degrees awarded in mathematics increased from 3,400 in fall 2004 to 4,300 in fall 2005. In 2002 we began tabulating the number of "undergraduate degrees", rather than the number of "junior/senior majors"; hence comparisons to previous years' numbers of undergraduate degrees can be made only to the last four years, and this is done in Table 5B. From this data we see that after three years of steadily increasing, this year the number of undergraduate degrees awarded has dropped slightly.

The reader should be aware that at least 45 of the 1,902 departments in the 2005 Group M population and at least 269 of the 1,036 departments in the 2005 Group B population also offer a computer science program in addition to their offerings in mathematics. In some instances, these computer programs account for a major fraction of the department's undergraduate degrees. This year's estimated 23,400 undergraduate degrees awarded includes 7,000 in statistics and 5,900 in computer science, and of the 4,300 master's degrees awarded 600 were in statistics, and 200 were in computer science.

The report of the 2000 CBMS survey provides a more comprehensive study of departmental bachelor's degrees.

Graduate Student Profile

Table 6A summarizes information gathered by the 2005 Departmental Profile survey about graduate students enrolled in fall 2005. This table gives the number of full-time, full-time first-year, and part-time graduate students for each type of graduate department. These same numbers are also given for female graduate students and for U.S. citizen graduate students.

Although the estimated total number of graduate students in all mathematics groups combined increased from 12,853 in 2004 to 13,068 in 2005, the total number of full-time graduate students in Groups I, II, III, and Va combined decreased from 10,707 in 2004 to 10,565 in 2005. The number of U.S. citizen full-time graduate students in Groups I, II, III, and Va combined increased by 1% to 5,915. The number of first-year full-time students in Groups I, II, III, and Va combined decreased by 6%, from 3,004 last year to 2,832 this year (both the number of first-year U.S. citizens and the number of first-year non-U.S. citizens were down). The number of female full-time graduate students in Groups I, II, III, and Va combined decreased from 3,245 to 3,111. In Group IV the number of full-time graduate students increased by 3% to 4,310 and the number of U.S. citizen full-time graduate students decreased by 4% to 1,572. The first-year full-time graduate student enrollment in Group IV increased by 8 to 1,345, but the number of first-year full-time U.S. citizens was down from 582 to 550. The number of female full-time graduate students in Group IV decreased from 2,144 to 2,076, a 3% decrease. The percentage of full-time graduate students who are U.S. citizens in the mathematics groups combined is 59% while the percentage of full-time graduate students who are U.S. citizens in Group IV is 36%; the percentage of women is 31% in mathematics groups combined and 48% in Group IV. The number of full-time graduate students in Group M increased from 2,146 to 2,503. There is a great deal of variability in the number of full-time graduate students in Group M, even in universities that are roughly the same size, and this is reflected in the standard errors of 247 (160 last year). The number of part-time graduate students in Groups I, II, III, and Va decreased 1% to 1,764 this year, and in Group IV increased 20% to 749. Group III has 896 (51%) of the part-time graduate students in the doctoral mathematics groups. In the doctoral mathematics groups, 38% of the part-time graduate students are females and 82% are U.S. citizens, and in Group IV 52% of the part-time graduate students are females and 73% are U.S. citizens. The number of Group M part-time graduate students increased from 1,794 to 3,181, with a standard error of 341 this year and 188 last year. For Group M, 51% of the part-time graduate students are females and 88% are U.S. citizens.

Table 6B gives the total number of full-time and full-time first-year graduate students in Groups I, II, III, and Va combined, and the percentages of women and of U.S. citizens in each category, for fall 1996 through fall 2005. From this data we can see that total full-time graduate enrollment in the doctoral mathematics groups has been generally increasing since 1999, although it is down this year. Similarly, the number of first-year full-time graduate students declined this year after steadily increasing since

1998. The number of full-time graduate students who are U.S. citizens has been increasing since 2002, and the number of non-U.S. citizens has been decreasing since 2003. The number of female full-time graduate students which had been increasing since 2002 dropped 4% this year. The percentage of females among full-time graduate students in the combined mathematics groups has remained relatively stable over the 10-year period shown.

Previous Annual Survey Reports

The 2005 Annual Survey First and Second Reports were published in the *Notices of the AMS* in the February and August 2006 issues respectively. For the last version of this report, the 2004 Annual Survey Third Report was published in the *Notices of the AMS* in the September 2005 issue. These reports and earlier reports, as well as a wealth of other information from these surveys, are available on the AMS website at www.ams.org/employment/surveyreports.html.

Acknowledgments

The Annual Survey attempts to provide an accurate appraisal and analysis of various aspects of the academic mathematical sciences scene for the use and benefit of the community and for filling the information needs of the professional organizations. Every year, college and university departments in the United States are invited to respond. The Annual Survey relies heavily on the conscientious efforts of the dedicated staff members of these departments for the quality of its information. On behalf of the Annual Survey Data Committee and the staff, we thank the many secretarial and administrative staff members in the mathematical sciences departments for their cooperation and assistance in responding to the survey questionnaires.

Definitions of the Groups

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. Doctoral-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*.¹ These rankings update those reported in a previous study published in 1982.² Consequently, the departments which now comprise Groups I, II, and III differ significantly from those used prior to the 1996 survey.

The subdivision of the Group I institutions into Group I Public and Group I Private was new for the 1996 survey. With the increase in the number of Group I departments from 39 to 48, the Data Committee judged that a further subdivision of public and private would provide more meaningful reporting of the data for these departments.

Brief descriptions of the groupings are as follows:

Group I is composed of 48 doctoral-granting departments with scores in the 3.00–5.00 range. Group I Public and Group I Private are Group I doctoral-granting departments at public institutions and private institutions respectively.

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

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

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

Group Va is applied mathematics/applied science doctoral-granting departments; Group Vb, which is no longer surveyed as of 1998–99, was operations research and management science.

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

Group B or Bachelor's contains U.S. departments granting a baccalaureate degree only.

Listings of the actual departments which comprise these groups are available on the AMS website at www.ams.org/outreach.

¹Research-Doctorate Programs in the United States: Continuity and Change, edited by Marvin L. Goldberger, Brendan A. Maher, and Pamela Ebert Flattau, National Academy Press, Washington, DC, 1995.

²These 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, DC, 1982. The information on mathematics, statistics, and computer science was presented in digest form in the April 1983 issue of the *Notices*, pages 257–67, and an analysis of the classifications was given in the June 1983 *Notices*, pages 392–3.