2001 Annual Survey of the Mathematical Sciences

(Third Report)

Faculty Profile
Enrollment and Undergraduate Majors Profile
Graduate Student Profile

Don O. Loftsgaarden, James W. Maxwell, and Kinda Remick Priestley

This Third Report of the 2001 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 2001 Annual Survey represents the forty-fifth in an annual series begun in 1957 by the American Mathematical Society. The 2001 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, and the Mathematical Association of America. The current members of this committee are Lorraine Denby, J. Douglas Faires, Mary W. Gray, Alexander J. Hahn, Peter E. Haskell, G. Samuel Jordan, Stephen F. Kennedy, Ellen E. Kirkman, Don O. Loftsgaarden (chair), and James W. Maxwell (ex officio). The committee is assisted by AMS survey analyst Kinda Remick Priestley and survey coordinator Colleen Rose. Comments or suggestions regarding this Survey Report may be directed to the committee.

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 938 of this report. Departments in the former Group Vb are no longer surveyed. (See the 1999 First Report in the February 2000 *Notices of the AMS*.) We present information about the faculties and instructional programs at the undergraduate and graduate levels in these departments for the 2001–2002 academic year. For 1999–2000 and earlier years, these data were presented as part of the Second Report.

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 between 90 and 100 percent. Prior to this year, if doctoral departments did not respond, simple projections were made to the whole population using the data from those departments who did respond. Beginning this year, if a department did not return the Departmental Profile questionnaire but had returned one within the last two years, the data from the most recent questionnaire was used. This change in procedure will produce even more accurate results than those in past reports for these doctoral departments.

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 and whether it is a public or a private school. This year, for the first time, standard errors are calculated for several of the more important projections made in Groups M and B and these standard errors are reported. The box on page 929 discusses these standard errors in more detail.

Don O. Loftsgaarden is professor emeritus of mathematics, University of Montana. James W. Maxwell is AMS associate executive director for Professional Services. Kinda Remick Priestley is AMS survey analyst.

Remarks on New 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 938. 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 this 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 is being used. If a doctoral department did not return their questionnaire this year but returned one within the past two years, those numbers were used as their 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 three years ago. For the first time this year, standard errors have been 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 closely 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 4,336 with a standard error of 118. This means the actual number of full-time faculty in Group M is most likely between 4,336 plus or minus two standard errors, or between 4,100 and 4,572. This is much more informative than simply giving the estimate of 4,336.

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 19,712, with a standard error of 285.

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

Highlights

Standard errors for key estimates in Groups M and B are calculated for the first time this year.

Groups I, II, III, and Va had 2,314 full-time doctoral positions available, of which 1,618 were tenured/tenure-track. Groups M and B had 1,514 full-time doctoral positions available, of which 1,233 were tenured/tenure-track.

Of the 2,051 positions which were open to new doctoral recipients, 1,459 were tenured/tenure-track, up 27.3% from the 1,146 such positions under recruitment in 1999–2000.

Groups I, II, III, and Va hired 312 new doctoral recipients for fall 2001, and 59 (18.9%) filled tenured/tenure-track positions. Groups M and B hired 374 new doctoral recipients, and 259 (69.3%) filled tenured/tenure-track positions.

The estimated number of full-time faculty for all groups surveyed is 21,128, only 38 less than reported last year. The number of females is 5,135; the number having a doctorate is 17,753; the number of doctoral non-tenure-track is 2,188.

Detailed information is given in this report about the 3,338 nondoctoral full-time faculty and the 8,057 part-time faculty in all groups except Group IV.

The number of junior/senior majors in Groups I, II, III, Va, M, and B is 58,900, down 1,000 from last year.

Groups I, II, III, and Va had slightly more full-time first-year graduate students and non-U.S. citizen full-time graduate students than last year and are down slightly for other types of graduate students.

Standard errors for Group M departments are large for all types of graduate students. This makes possible substantial increases or decreases in Group M numbers from year to year simply due to the sampling variability rather than any real changes.

Faculty Profile

The Departmental Profile, sent in fall 2001 to mathematical sciences departments at four-year colleges and universities as part of the Annual Survey, gathered information about faculties at these schools, which is reported in this section. The 2001 First Report presented data collected earlier about faculty salaries (pages 217–231 of the February 2002 issue of the *Notices of the AMS*).

Faculty Attrition

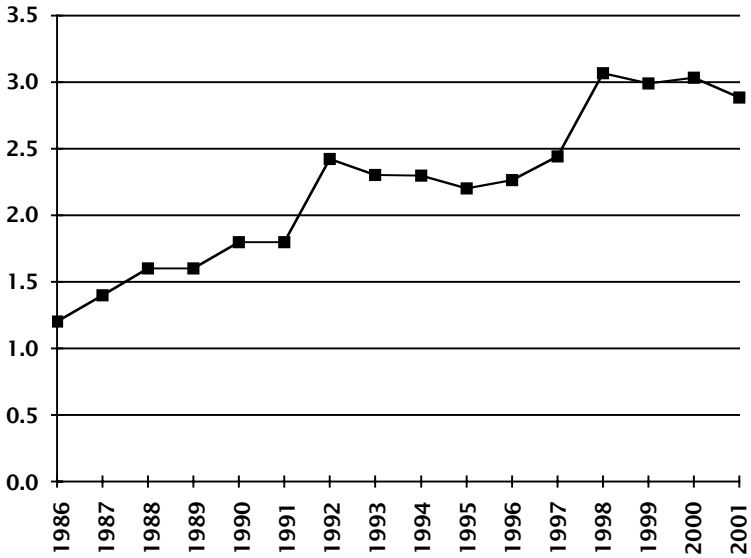
Table 1 displays losses of full-time mathematical sciences faculty due to retirements and deaths. The fall 2001 mathematics faculty attrition rate for Groups I, II, III, Va, M, and B combined was 2.9%, compared with fall 2000, 1999, and 1998 values of 3.0%, 3.0%, and 3.1% respectively. Group I Private had the lowest attrition rate at 0.5%, and Group B the highest at 3.6%. These rates vary quite a bit from year to year for each of the groups. Figure 1 shows

Table 1: Faculty Attrition,[1] Fall 2001

	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	32	4	74	49	9	**168**	113	288	**569**	25
(Standard error)							*(12)*	*(42)*	*(43)*	
Percentage	1.8	0.5	3.0	2.4	3.1	**2.3**	2.6	3.6	**2.9**	1.8

[1] Number and percentage of full-time faculty who were in the department in fall 2000 but were reported to have retired or died by fall 2001.

Figure 1: Percent of Full-Time Doctoral Faculty Who Retired or Died in Groups I, II, III, Va, M, & B, Fall 1986 to Fall 2001



the trend in this attrition rate for mathematics departments during the years 1986 to 2001.

Faculty Recruitment

Table 2A contains detailed information on the number of full-time doctoral faculty positions in mathematical sciences departments under recruitment in 2000–2001 for employment beginning in the academic year 2001–2002. Among mathematics departments (Groups I, II, III, Va, M, and B), 2,314 positions were under recruitment in 2000–2001 for employment beginning in the academic year 2001–2002, up 23.5% compared to last year. Of those 2,314 positions, 2,051 (88.6%) were available to new doctoral recipients, and of those 2,051 positions, 1,459 (71.1%) were tenured/tenure-track positions. The 1,459 tenured/tenure-track positions open to new doctoral recipients was up from the 1,146 such positions under recruitment in 1999–2000.

Under the "Reported Hires for Above" section in Table 2A, four new rows have been added giving the

Table 2A: Recruitment of Doctoral Faculty, Fall 2001

	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]	**235**	**128**	**222**	**182**	**33**	**800**	**476**	**1038**	**2314**	**203**
(Standard error)							*(49)*	*(83)*	*(96)*	
Tenured/tenure-track	86	38	107	137	17	**385**	436	797	**1618**	144
Open to new doctoral recipients	152	105	174	140	26	**597**	473	981	**2051**	143
Tenured/tenure-track	40	21	81	113	12	**267**	424	768	**1459**	114
Open at assoc/full level	45	15	29	42	7	**138**	93	101	**332**	75
Reported Hires for Above										
Total number	**208**	**119**	**186**	**137**	**29**	**679**	**342**	**844**	**1865**	**131**
Male doctoral hires	171	100	144	102	28	**545**	204	438	**1187**	85
Tenured/tenure-track	62	26	61	70	12	**231**	178	257	**666**	57
Female doctoral hires	32	19	37	32	1	**121**	88	225	**434**	45
Tenured/tenure-track	7	6	11	25	1	**50**	79	167	**296**	27
Male nondoctoral hires	2	0	4	1	0	**7**	24	118	**149**	1
Female nondoctoral hires	2	0	1	2	0	**5**	26	66	**97**	0
Total new doctoral hires	**97**	**83**	**75**	**44**	**13**	**312**	**112**	**262**	**686**	**54**
Male new doctoral hires	79	69	57	32	12	**249**	63	185	**497**	29
Tenured/tenure-track	3	6	9	25	5	**48**	56	103	**207**	29
Female new doctoral hires	18	14	18	12	1	**63**	49	77	**189**	25
Tenured/tenure-track	0	1	1	8	1	**11**	48	52	**111**	16
Unfilled Positions	**28**	**8**	**36**	**45**	**4**	**121**	**135**	**193**	**449**	**73**
Temporarily Filled Positions										
Male	7	10	25	13	2	**57**	58	148	**263**	7
Female	1	0	3	7	0	**11**	45	103	**159**	5

[1] Number of full-time doctoral positions under recruitment in 2000–2001 to be filled for 2001–2002.

number of positions that were tenured/tenure-track for various categories. This is the first year such information has been reported by the Annual Survey, and there are some interesting and surprising results found in these data.

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. 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 Groups I, II, III, and Va combined filled 666 doctoral positions, of which 281 (42.2%) were tenured/tenure-track positions. Groups M and B combined filled 955 doctoral positions, of which 681 (71.3%) were tenured/tenure-track. From Table 2C we see that these same two percentages for new doctoral recipients only are 18.9% and 69.3% respectively. For other doctoral hires these same two percentages are 62.7% and 72.6% respectively.

From Table 2B we find that of the new doctoral recipients hired in groups I, II, III, and Va combined, 19.3% of the males and 17.5% of the females took tenured/tenure-track positions. For new doctoral recipients hired in Groups M and B combined, 64.1% of the males and 79.4% of the females took tenured/tenure-track positions. Even though 44.7% of the positions available in doctoral departments (Groups I, II, III, and Va) for new doctoral recipients were tenure-track positions, only 18.9% of the new doctoral recipients hired were given tenured/tenure-track positions. At the same time, 354 of those hired were not new doctoral recipients and 62.7% had tenured/tenure-track positions.

Figure 2 shows the number of full-time doctoral positions available in all groups except Group IV, as well as the number of those that were tenured/tenure-track and the number unfilled for the years 1990 to 2001. There was a sharp decrease in available positions in the first three years of the decade of the 1990s, but the number of positions and the number of tenured/tenure-track positions have been increasing since then.

Faculty Size

Table 3A gives the number of faculty for different categories of faculty broken down by group. Table 3B gives the same information for females only. The estimated total number of full-time faculty in Groups I, II, III, Va, M, and B combined is 19,712, down 67 from last year. The standard error for the 19,712, available for the first time this year, is 285. We can be quite confident that the actual total number of faculty in these groups is in the interval 19,712 +/- 570. The doctoral departments I, II, III, and Va were up 133 full-time faculty members, Group M was down 439 faculty members, and Group B was up 239. In a periodic reclassification of departments, several of last year's Group M departments became Group B departments. This probably accounts for much of the drop in full-time faculty members at Group M departments and some of the increase in faculty at Group B departments. The standard errors for the total number of full-time faculty in Groups M and B are 118 and 260 respectively. These indicate there is substantial variation in the number of full-time faculty members in the departments in Groups M and B, even in departments at schools that have approximately the same total enrollments. The standard error for Group M indicates that there is a real drop in the number of faculty members in Group M departments. Although Group B was up 239 full-time faculty this year, there may not be an actual change, as this increase is well within the variability we expect with a standard error of 260.

Table 3C gives some percentages based on the information in Tables 3A and 3B.

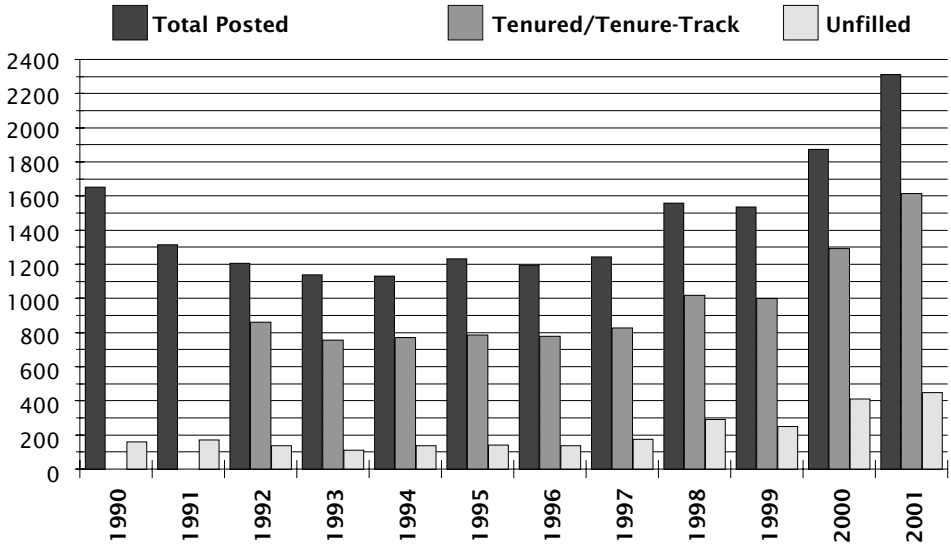
Table 2B: A Summary of Recruitment of Doctoral Faculty, Fall 2001

	GROUP		
	I, II, III, & Va	M & B	IV
Posted Doctoral Positions			
Total number	800	1514	203
Tenured/tenure-track	385	1233	144
Open to new doctoral recipients	597	1454	143
Tenured/tenure-track	267	1192	114
Reported Hires for Above			
Total new doctoral hires	312	374	54
Tenured/tenure-track	59	259	45
Male	249	248	29
Tenured/tenure-track	48	159	29
Female	63	126	25
Tenured/tenure-track	11	100	16
Total not new doctoral hires	354	581	76
Tenured/tenure-track	222	422	39
Male	296	394	56
Tenured/tenure-track	183	276	28
Female	58	187	20
Tenured/tenure-track	39	146	11

Table 2C: Percentage Tenured/Tenure-track for Positions Posted and Filled, Fall 2001

	GROUP		
	I, II, III, & Va	M & B	IV
New Doctoral Positions			
Positions posted	597	1454	143
% tenured/tenure-track	44.7	82.0	79.7
Positions filled	312	374	54
% tenured/tenure-track	18.9	69.3	83.3
Not New Doctoral Positions			
Positions posted	---	---	---
% tenured/tenure-track			
Positions filled	354	581	76
% tenured/tenure-track	62.7	72.6	51.3

Figure 2: Number of Full-Time Doctoral Positions under Recruitment: Total, Tenured/Tenure-Track, and Unfilled in Groups I, II, III, Va, M, & B Combined, Fall 1990 to Fall 2001



Note: The tenured/tenure-track status of positions under recruitment was not surveyed until 1992.

The number of non-tenure-track doctoral full-time faculty and the number of part-time faculty have been increasing in recent years. Table 3D gives a six-year history of these two types of 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. This increase in non-tenure-track full-time doctoral positions continues a disturbing trend reported in "Changes in mathematics faculty composition, fall 1990–fall 1996" (James W. Maxwell, *Notices of the AMS*, November 1997, pages 1321–3). Tables 2B and 2C have information in them that may help in understanding this issue. They give details about the doctoral hires for fall 2001 and how many were tenured/tenure-track

Table 3A: Faculty Size, Fall 2001

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
Full-time faculty *(Standard error)*	**1746**	**902**	**2456**	**2055**	**273**	**7432**	**4336** *(118)*	**7944** *(260)*	**19712** *(285)*	**1416**
Doctoral full-time faculty	1670	898	2205	1786	272	**6831**	3374	6169	**16374**	1379
Tenured	1171	537	1613	1318	139	**4778**	2346	4115	**11239**	836
Untenured, tenure-track	149	89	248	305	29	**820**	845	1550	**3215**	275
Non-tenure-track *(Standard error)*	350	272	344	163	104	**1233**	183 *(24)*	504 *(73)*	**1920** *(76)*	268
Non-doctoral full-time faculty	76	4	251	269	1	**601**	962	1775	**3338**	37
Part-time faculty *(Standard error)*	**214**	**53**	**459**	**719**	**22**	**1467**	**2393** *(262)*	**4197** *(297)*	**8057** *(396)*	**171**

Table 3B: Female Faculty Size, Fall 2001

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
Full-time female faculty	**209**	**92**	**409**	**407**	**27**	**1144**	**1368**	**2283**	**4795**	**340**
Doctoral full-time female faculty	165	90	248	260	27	**790**	769	1527	**3086**	321
Tenured	73	26	119	142	7	**367**	465	870	**1702**	121
Untenured, tenure-track	21	12	45	79	6	**163**	261	510	**934**	94
Non-tenure-track	71	52	84	39	14	**260**	43	147	**450**	106
Non-doctoral full-time faculty	44	2	161	147	0	**354**	599	756	**1709**	19
Part-time female faculty	**89**	**10**	**173**	**275**	**7**	**554**	**895**	**1803**	**3252**	**57**

Table 3C: Number and Percentage of Full-Time Faculty, Fall 2001

	GROUP								
	I Public	I Private	II	III	Va	M	B	IV	Total All Groups
Full-Time Faculty									
Number	1746	902	2456	2055	273	4336	7944	1416	**21128**
Percentage of total full-time faculty	8.3	4.3	11.6	9.7	1.3	20.5	37.6	6.7	**100.0**
Female Full-Time Faculty									
Number	209	92	409	407	27	1368	2283	340	**5135**
Percentage of female full-time faculty	4.1	1.8	8.0	7.9	0.5	26.6	44.5	6.6	**100.0**
Female Full-Time Faculty									
Percentage female full-time faculty by group	12.0	10.2	16.7	19.8	10.0	31.5	28.7	24.0	**24.3**

Table 3D: Number, and Percentage of Those Female, of Non-Tenure-Track Doctoral Full-Time Faculty

	1996	1997	1998	1999	2000	2001
Groups I, II, III, & Va						
Non-tenure-track doctoral full-time faculty	672	708	904	1014	993	1233
Percentage female	24.9	21.5	20.7	21.7	20.6	21.1
Part-time faculty	1093	954	1141	1217	1399	1467
Percentage female	36.7	36.8	38.0	37.8	37.0	37.8
Group M						
Non-tenure-track doctoral full-time faculty	138	216	140	146	262	183
Percentage female	23.9	29.6	27.1	56.2	29.0	23.5
Part-time faculty	1879	1612	1768	1906	2323	2393
Percentage female	41.4	45.5	42.8	35.2	36.2	37.4
Group B						
Non-tenure-track doctoral full-time faculty	419	385	427	514	407	504
Percentage female	22.9	26.2	31.1	23.7	30.2	29.2
Part-time faculty	3055	3107	3585	3298	3580	4197
Percentage female	44.0	46.0	42.3	40.7	40.4	43.0

positions. There has also been substantial growth in part-time faculty in recent years.

Table 3E gives a summary of the various types of faculty found in departments of mathematical sciences by sex and group. Nondoctoral full-time faculty have been added to this table this year and make the partition of full-time faculty complete.

Tables 3F and 3G give more information about two types of faculty: full-time faculty without a doctorate and part-time faculty. The top half of Table 3F is a somewhat condensed version of the doctoral full-time faculty in Table 3A broken down by sex. The bottom half of Table 3F shows this same information for the 3,338 full-time faculty who do not have doctoral degrees. The majority of these faculty,

Table 3E: Summary of Full-Time and Part-Time Faculty by Sex, Fall 2001

	GROUP					
	I, II, III, & Va		M & B		IV	
	Male	Female	Male	Female	Male	Female
Full-time faculty	6288	1144	8629	3651	1076	340
Percentage	84.6	15.4	70.3	29.7	76.0	24.0
Doctoral full-time faculty	6041	790	7247	2296	1058	321
Percentage	88.4	11.6	75.9	24.1	76.7	23.3
Tenured	4411	367	5126	1335	715	121
Percentage	92.3	7.7	79.3	20.7	85.5	14.5
Untenured, tenure-track	657	163	1624	771	181	94
Percentage	80.1	19.9	67.8	32.2	65.8	34.2
Non-tenure-track	973	260	497	190	162	106
Percentage	78.9	21.1	72.3	27.7	60.4	39.6
Non-doctoral full-time faculty	247	354	1382	1355	18	19
Percentage	41.1	58.9	50.5	49.5	48.6	51.4
Part-time faculty	913	554	3892	2698	114	57
Percentage	62.2	37.8	59.1	40.9	66.7	33.3

Table 3F: Doctoral and Nondoctoral Full-Time Faculty Size, Fall 2001

	GROUP					
	I, II, III, & Va		M & B		Total	
	Male	Female	Male	Female	Male	Female
Doctoral full-time faculty	**6041**	**790**	**7247**	**2296**	**13288**	**3086**
Tenured	4411	367	5126	1335	9537	1702
Untenured, tenure-track	657	163	1624	771	2281	934
Non-tenure-track	973	260	497	190	1470	450
Nondoctoral full-time faculty	**247**	**354**	**1382**	**1355**	**1629**	**1709**
Tenured	22	15	516	262	538	277
Untenured, tenure-track	4	3	149	171	153	174
Non-tenure-track	221	336	717	922	938	1258

2,737 (82.0%), are found in Groups M and B departments.

There are 8,057 part-time faculty in the mathematical sciences departments in Groups I, II, III, Va, M, and B. Table 3G shows where these part-time faculty are found, broken down by sex and whether they have a doctoral degree.

With the addition of new information gathered in this year's annual survey and the addition of three new tables in this section, this report contains the most complete picture of the faculty in mathematical sciences in the U.S. that has ever been published in this series of reports.

Faculty Profile for Females

Table 3B gives a complete breakdown of all categories of female faculty by group. The total number of full-time faculty in all groups for 2001–2002 is 21,128, of which 5,135 (24.3%) are females.

Table 3C shows the number and percentage of all full-time and female full-time faculty that fall into each group for 2001–2002. The number of faculty in each group and the percentage who are female is given in the bottom section of Table 3C. The number of females as a percentage of full-time faculty varies considerable among the groups, from 10.2% and 10.0% for Groups I Private and Va to 31.5% and 28.7% for Groups M and B respectively. This is the same pattern as reported last year. Note: In Table 3C the percentages for each group in rows 2 and 4 are of the row totals. The percentages in row 6 are column percentages using the numbers in rows 1 and 3.

Table 3D contains information about non-tenure-track doctoral full-time faculty and part-time faculty for the years 1996 to 2001 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 female for each number.

Table 3E gives the male/female breakdown by count and percentage for Groups I, II, III, and Va combined for various categories of faculty in columns 2 and 3. The same breakdowns are given for Groups M and B combined in columns 4 and 5 and for Group IV in columns 6 and 7.

Table 3F shows that of the 3,338 nondoctoral full-time faculty in Groups I, II, III, Va, M, and B, 1,709 (51.2%) are females. In Table 3G we see that in these same groups there are 8,057 part-time faculty, of which 3,252 (40.4%) are females.

Table 3G: Part-Time Faculty Size, Fall 2001

	GROUP				
	I, II, III, & Va		M & B		
	Male	Female	Male	Female	TOTAL
Doctoral part-time faculty	384	142	833	222	**1581**
Non-doctoral full-time faculty	529	412	3059	2476	**6476**
Total	**913**	**554**	**3892**	**2698**	**8057**

Enrollment Profile and Undergraduate Majors Profile

Enrollment

The Departmental Profile Survey obtained information about enrollments and distribution of instructional effort among various course categories in mathematical sciences departments. Table 4A gives the total undergraduate and total graduate enrollments in mathematics courses for each group that is part of the Annual Survey. Each enrollment in this and other tables in this section is projected

Table 4A: Undergraduate and Graduate Enrollments (thousands), Fall 2001

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	IV	Total All Groups
Undergraduate Course Enrollments Total number (thousands) *(Standard error)*	176	42	279	246	12	**755**	513 *(19)*	743 *(25)*	81	**2092** *(32)*
Graduate Course Enrollments Total number (thousands)	7	5	9	9	2	**32**	14		26	**72**

Table 4B: Distribution of Undergraduate Enrollments (thousands), Fall 2001

	GROUP																			
	I Public		I Private		II		III		Va		I, II, III, & Va		M		B		IV		Total All Groups	
Remedial Mathematics[1]																				
Total number (thousands), %[2]	12	7	0	1	17	6	31	13	0	1	**60**	**8**	80	16	101	14	0	0	**241**	**12**
Precalculus																				
Total number (thousands), %	33	19	1	3	67	24	59	24	1	6	**161**	**22**	129	25	144	19	1	1	**435**	**21**
1st-Year Calculus (mainstream)																				
Total number (thousands), %	46	26	15	36	53	19	35	14	3	23	**152**	**20**	46	9	95	13	0	0	**293**	**14**
1st-Year Calculus (nonmainstream)																				
Total number (thousands), %	20	12	5	11	34	12	25	10	0	0	**84**	**11**	34	6	28	4	1	1	**147**	**7**
Statistics																				
Total number (thousands), %	3	1	2	5	13	5	18	7	2	21	**38**	**5**	49	10	85	11	76	93	**248**	**12**
Computer Science																				
Total number (thousands), %	2	1	0	1	1	0	10	4	0	2	**13**	**2**	24	5	72	10	0	0	**109**	**5**
Other Enrollments for Majors																				
Total number (thousands), %	36	21	11	25	42	15	30	12	4	32	**123**	**16**	45	9	76	10	2	3	**246**	**12**
Remaining Undergraduate Enroll.																				
Total number (thousands), %	24	13	8	18	52	19	38	16	2	15	**124**	**16**	106	21	142	19	1	2	**373**	**18**
Total Enrollments	**176**		**42**		**279**		**246**		**12**		**755**		**513**		**743**		**81**		**2092**	

[1] Arithmetic, high school algebra, geometry.
[2] Percents are "column percents" describing relative enrollments within the respective survey groups of the different types of undergraduate courses.

from schools responding to the survey as discussed on page 928. In fall 2001, for the third 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. This was done for the first time for fall 2001, and these standard errors are also found in Table 4A. The estimated total enrollment for all groups is 2,092,000, with a standard error of 32,000, indicating that the actual total enrollment is likely within 2,092,000 +/- 64,000.

Table 4B presents a further breakdown of the undergraduate enrollments into eight categories of courses. For each group, the percentage of the total enrollment in the group that is in each of these eight categories is also given. Column totals in Table 4B give the total enrollments for each group, and they

Table 4C: Total Undergraduate Enrollments (thousands), Fall 1996 to Fall 2001

	GROUP								
	I Public	I Private	II	III	Va	M	B	IV	Total
1996	215[1]		245	212	21[2]	589	705	98	**2085**
1997	173	42	247	220	24[2]	561	701	69	**2037**
1998	182	43	258	214	20[2]	585	741	78	**2121**
1999	182	45	271	251	13	568	810	92	**2232**
2000	175	47	279	241	13	526	729	77	**2087**
2001	176	42	279	246	12	513	743	81	**2092**

[1] Prior to 1997, Group I was not separated into Public and Private.
[2] Prior to 1999, Group Va was combined with Group Vb, which is no longer surveyed. Separate Group Va figures for these years are not available.

Table 4D: Distribution of Undergraduate Enrollments (thousands), Fall 1992 to Fall 2001

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Remedial Mathematics	300	294	279	275	269	274	322	281	265	241
Precalculus	356	341	342	336	332	303	347	429	403	435
1st-Year Calculus (mainstream)	315	319	298	314	312	309	325	321	309	293
1st-Year Calculus (nonmainstream)	127	138	131	145	144	146	148	151	154	147
Statistics	213	215	199	209	218	233	233	282	236	248
Computer Science	141	111	119	108	119	113	116	142	129	109
Other Enrollments for Majors	270	258	233	257	263	233	218	235	220	246
Remaining Undergraduate Enroll.	392	353	353	411	428	426	412	391	371	373
Total Enrollments	**2114**	**2029**	**1954**	**2055**	**2085**	**2037**	**2121**	**2232**	**2087**	**2092**

Table 4E: Undergraduate and Graduate Enrollments per Full-Time Faculty Member, Fall 2001

	GROUP							
	I Public	I Private	II	III	Va	M	B	IV
Undergraduate Course Enrollments Number per full-time faculty member	101	47	114	120	41	118	94	57
Graduate Course Enrollments Number per full-time faculty member	4	5	4	4	7	3		18

are the numbers given in the first row of Table 4A. Table 4C gives these totals for fall 1996 to fall 2001. Row totals in Table 4B give the total enrollments in each of the eight categories of courses for all mathematical sciences departments. Table 4D shows these same enrollments for fall 1992 to fall 2001. In the annual reports for 1999 and 2000, the authors said they felt that the 2,232,000 estimated total enrollment for fall 1999 was too high. With the standard error for total enrollment available in this report (and assuming it would have had a similar value in fall 1999), it appears even more certain this is true. The estimated total enrollment for fall 1999 is probably at least 80,000 too many.

Table 4E gives the undergraduate enrollments per faculty member and the graduate enrollments per faculty member for each group. Table 4F gives the undergraduate enrollments per faculty member in each group for fall 1996 to fall 2001.

Looking at the historical data among the enrollment tables just presented for fall 1992 to fall 2001, no major trends can be seen. This has been a very stable decade for enrollments.

Table 4F: Undergraduate Enrollments per Full-Time Faculty Member, Fall 1996 to Fall 2001

	GROUP							
	I Public	I Private	II	III	Va[2]	M	B	IV
1996	88[1]		110	108	---	112	100	69
1997	110	52	115	113	---	106	96	57
1998	109	52	114	108	---	117	94	60
1999	115	54	111	122	43	127	114	68
2000	107	52	117	119	39	110	95	56
2001	101	47	114	120	41	118	94	57

[1] Prior to 1997, Group I was not separated into Public and Private.

[2] Prior to 1999, Group Va was combined with Group Vb, which is no longer surveyed. Group Va figures for these years are not available.

Majors

Table 5A gives the number of junior/senior majors and the number of female junior/senior majors for each group. Table 5B gives the total number of junior/senior majors and female junior/senior

Table 5A: Undergraduate Junior/Senior Majors (hundreds), Fall 2001

	GROUP								
	I Public	I Private	II	III	Va	M	B	I, II, III, Va, M, & B	IV
Total Undergraduate Junior/senior majors (hundreds) *(Standard error)*	55	17	48	57	4	121 *(9)*	287 *(21)*	**589** *(23)*	11
Female Undergraduate Junior/senior majors (hundreds)	20	5	20	23	1	53	120	**242**	4

Table 5B: Junior/Senior Majors (hundreds) in Groups I, II, III, Va, M & B Combined, Fall 1992 to Fall 2001

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total Undergraduate Junior/senior majors (hundreds)	732	696	669	678	631	596	590	568	599	589
Female Undergraduate Junior/senior majors (hundreds)	320	301	287	286	273	257	255	248	244	242
Percentage female	43.7	43.2	42.9	42.2	43.3	43.1	43.2	43.7	40.7	41.1

majors for fall 1992 to fall 2001. The number of junior/senior mathematics majors in Groups I, II, III, Va, M, and B dropped from 73,200 in 1992 to 56,800 in 1999 but has been higher in the past two years, with 59,900 in 2000 and 58,900 in 2001. The percentage of the junior/senior majors who are females remained relatively constant, near 43% during the years 1991 to 1999, but dropped 3.0% in 2000 to 40.7%. There was a slight increase in 2001 to 41.1%.

The reader should be aware that at least 50 of the 202 departments in the 2001 Group M population and at least 260 of the 1,025 departments in the 2001 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 majors (and even the degrees awarded by the departments). This year's Departmental Profile questionnaire was the first to request that departments give a breakout of the computer science majors from the total majors. These data are not considered reliable enough to report this year. However, a preliminary analysis of the data clearly shows that the number of computer science majors is substantial.

The report of the 2000 CBMS survey, *Statistical Abstract of Undergraduate Programs in the Mathematical Sciences in the U.S.: Fall 2000 CBMS Survey* (David J. Lutzer, James W. Maxwell, and Stephen B. Rodi, authors; American Mathematical Society, Providence, RI, 2002), provides a more comprehensive study of departmental bachelor's degrees.

Graduate Student Profile

Table 6A summarizes information gathered about graduate students by the 2001 Departmental Profile survey. 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.

The total number of full-time graduate students in Groups I, II, III, Va, and M combined held steady from 2000 to 2001, with 12,123 and 12,127 respectively. In general, in Table 6A there were gains

Table 6A: Graduate Students, Fall 2001

	GROUP								
	I Public	I Private	II	III	Va	I, II, III, & Va	M	I, II, III, Va, & M	IV
Total Graduate Students									
Number who are full-time	2522	1471	2590	2070	708	**9361**	2766	**12127**	3735
(Standard error)							*(347)*	*(347)*	
Number who are first-year	694	414	816	724	227	**2875**	1236	**4111**	1307
Number who are part-time	157	185	355	731	47	**1475**	3682	**5157**	998
(Standard error)							*(594)*	*(594)*	
Female Graduate Students									
Number who are full-time	646	326	886	825	216	**2899**	1189	**4088**	1981
Number who are first-year	191	118	322	301	82	**1014**	516	**1530**	778
Number who are part-time	71	40	130	321	12	**574**	1735	**2309**	602
U.S. Citizen Graduate Students									
Number who are full-time	1185	696	1409	1009	332	**4631**	1497	**6128**	1680
(Standard error)							*(154)*	*(154)*	
Number who are first-year	389	204	453	353	118	**1517**	651	**2168**	616
Number who are part-time	110	123	286	579	31	**1129**	3151	**4280**	758
(Standard error)							*(547)*	*(547)*	

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

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Total full-time graduate students	10595	10525	10185	9761	9476	9003	8791	8838	9637	9361
First-year full-time graduate students	2840	2762	2668	2601	2443	2386	2510	2664	2839	2875
Female full-time graduate students	3045	2990	2927	2877	2760	2691	2770	2766	3016	2899
Male full-time graduate students	7550	7535	7258	6884	6716	6312	6021	6072	6621	6462
U.S. citizen full-time graduate students	6020	5865	5945	5623	5445	4947	4831	4668	5085	4631
Non-U.S. citizen full-time graduate students	4575	4660	4240	4138	4031	4056	3960	4170	4552	4730

in Groups I Private, M, and IV, with losses in the other groups. First-year full-time graduate students in Groups I, II, III, Va, and M combined increased by 301 to 4,111, an increase of 7.9%. Full-time female graduate students in Groups I, II, III, Va, and M combined decreased from 4,184 to 4,088, a 2.3% decrease. U.S. citizen full-time graduate students in these same groups decreased by 7.0% to 6,128. 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. Evidence of this is the standard error of 347. We can also expect substantial variation in the total number of all full-time graduate students from year to year due to the large variation in Group M.

Part-time graduate students in Groups I, II, III, and Va decreased from 1,600 to 1,475, down 7.8% from last year. Group III has 731 (49.6%) of the part-time graduate students in these groups. In these doctoral groups, 38.9% of the part-time graduate students are females and 76.5% are U.S. citizens. Group M part-time graduate students increased from 2,091 to 3,682, up 76.1%. The standard error for part-time graduate students in Group M departments is 594, indicating huge differences in the number of part-time graduate students from department to department. This also means we can expect to see large differences from year to year in the total number of part-time graduate students in all groups. For Group M, 47.1% of the part-time graduate students are females and 85.6% are U.S. citizens.

Table 6B gives the total number of full-time, full-time first-year, full-time female, full-time male, full-time U.S. citizen, and full-time non-U.S. citizen graduate students in Groups I, II, III, and Va combined for fall 1992 through 2001. All of these had substantial increases from 1999 to 2000, with a leveling off from 2000 to 2001. Only first-year full-time graduate students and non-U.S. citizen full-time graduate students had increases this year, while the other four types of graduate students had small decreases.

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 number of the 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 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, which is no longer surveyed as of 1998–99, was 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.

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

[1]Research-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.*

[2]*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, 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.*

Acknowledgments

The Annual Survey of the Mathematical Sciences 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 Annual Survey 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.