

# 2008 Annual Survey of the Mathematical Sciences in the United States

*(Third Report)*

Faculty Profile  
Enrollment and Degrees Awarded Profile  
Graduate Student Profile

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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. The information presented in this report was gathered on a questionnaire called the Departmental Profile which was mailed to all mathematical sciences departments in Groups I, II, III, IV, Va, and M and to a stratified random sample drawn from Group B. The questionnaire gathered information about the number of faculty in various categories, the recruitment of new faculty, undergraduate and graduate course enrollments, number of bachelor's and master's degrees awarded during the preceding year, and the number of graduate students, all as of fall 2008. The 2008 First Report, Part II, presented data collected earlier about faculty salaries (pages 388–94 of the March 2009 issue of *Notices of the AMS*). Definitions of the various departmental groupings used in the Annual Survey reports can be found on page 1300 of this report.

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). Further details on the statistical procedures used with the survey are described on page 1300.

This Third Report of the 2008 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.

The Annual Survey series begun in 1957 by the American Mathematical Society is currently 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 Mathematical Association of America, and the Society of Industrial and Applied Mathematics. The current members of this committee are Richard Cleary, Richard M. Dudley, John W. Hagood, Abbe H. Herzig, Ellen Kirkman, David J. Lutzer, Joanna Mitro, James W. Maxwell (ex officio), Bart Ng, Polly Phipps (chair), Douglas Raveland, Jianguo (Tony) Sun, and Marie Vitulli. The committee is assisted by AMS survey analyst Colleen A. Rose. Comments or suggestions regarding this Survey Report may be directed to the committee.

## Faculty Size

Table 1A gives the number of faculty for different categories of faculty broken down by survey group, Table 1B gives the same information for females only, and 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 22,166, with a standard error of 367, up 696 from last year. The doctoral mathematics departments (Groups I, II, III, and Va) full-time

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## Highlights

Changes in the numbers of faculty from 2007 to 2008 were modest.

The estimated number of full-time faculty in all mathematics departments combined is 22,166, up 3% from 21,470 last year. Almost all of this increase is due to the increase in the 2008 count of full-time faculty in Group B departments. The number of nondoctoral full-time faculty is 3,977, up slightly from 3,839 last year. The number of part-time faculty is 6,700, down 5% from 7,065 last year.

For the doctoral math departments combined, the number of full-time non-tenure-track doctorate-holding faculty continued its slow but steady climb since 2001. This number reached 1,601 for 2008, up 30% over its 2001 figure of 1,233. Faculty holding a postdoctoral position have been tracked separately since 2003 and for the second consecutive year, this category accounted for just over half of the non-tenure-track faculty reported by the doctoral math departments.

For the combined mathematics departments, women comprised 28% of the full-time faculty in fall 2008. For the doctoral mathematics departments combined, women comprised 13% of the doctoral-holding tenured and tenure-track faculty and 25% of the doctoral-holding non-tenure-track faculty in fall 2008. For Group M faculty these same percentages are 26 and 32 respectively, and for Group B faculty they are 25 and 26 respectively. Among the nondoctoral full-time faculty in all math departments combined, women comprise 55%. All percentages are in line with those of the past two years, though definitely up from those of 2001 for all but Group B departments.

For all mathematics departments combined, the number of full-time positions under recruitment during 2007-2008 increased 13% over the 2006-2007 figure, reaching a high of 2,012. This is larger than any such number reported over the past thirteen years, save for the 2000-2001 academic year. The number of tenured/tenure-track positions under recruitment during this period was 1,213, up 7% from the previous year's figure of 1,131. The number of full-time positions filled was 1,816, with 978 of these tenured/tenure-track positions. These figures are up 22% and 21%, respectively, from the figures reported for fall 2007. Again, most of the increase in these estimates comes from Group B departments.

For all mathematics departments combined, the number of new doctoral hires for positions beginning in fall 2008 was up 20% from the previous year's number, to 758. On the other hand, there was a substantial decline in the number of new doctoral recipients obtaining tenure-track positions for fall 2008 with 284 such hirings reported compared to 331 reported for fall 2007. At the same time, the number of non-tenure-track positions filled by new doctoral recipients increased from 303 in fall 2007 to 474 in fall 2008. All of this increase in hiring is the result of the increases in hiring into non-tenure-track positions by Group M and B departments.

Among the 253 individuals hired into tenure-track positions in the doctoral mathematics departments, 136 held a non-tenure-track position when hired and 34% of these were postdoctoral positions. For the 725 individuals hired into tenure-track positions in Groups M and B combined, 29% (211) held a non-tenure-track position when hired and 6% of these were postdoctoral positions.

The reported number of full-time graduate students at doctoral mathematics departments decreased slightly for the second consecutive year from 10,937 to 10,883 for fall 2008. The number and percentage of women among these graduate students also decreased slightly to 3,193 (29%). The percent of U.S. citizens among the total full-time graduate students remained steady at 56%. The percentage of underrepresented minorities among the U.S. citizen graduate students remains steady 10%, in line with the figures for the prior years.

faculty has remained relatively stable at 8,055, Group M is up 87 faculty members, and Group B is up 608. The total faculty size in the statistics and biostatistics group (Group IV) is up to 1,749 this year from 1,691 last year.

This year the estimated number of part-time faculty in Groups I, II, III, Va, B, and M combined is 6,700, down 5% from last year's 7,065. The number of non-tenure-track doctoral faculty (including postdoctoral positions) is estimated at 2,364 this year, up 9% from 2,170 last year. The number of nondoctoral full-time faculty is estimated at 3,977 in Groups I, II, III, Va, M, and B combined, up from 3,839 last year, a 4% increase. In Group IV the number of part-time faculty decreased from 149 last year to 143 this year, and the number of non-tenure-track doctoral faculty increased from 378 last year to 386 this year due to the increased number of postdoctoral appointments.

Table 1D gives an eight-year history of tenured/tenure-track, and non-tenure-track doctorate-holding faculty, and all 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 2008 values to the 2001 values, we see that for Groups I, II, III, and Va combined the number of tenured/tenure-track faculty is up 2%, the number of non-tenure-track faculty is up 30%, and the number of part-time faculty is down 20%. For Group M, the number of tenured/tenure-track faculty is up 7%, the number of non-tenure-track faculty is up 26%, and the number of part-time faculty is down 21%. Finally in Group B, the number of tenured/tenure-track faculty is up 19%, the number of non-tenure-track faculty is up 6%, and the number of part-time faculty is down 12%.

Table 1E gives a summary of the various types of faculty found in departments of mathematical sciences by gender 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 Table 1F shows the information for the 3,977 full-time faculty in the mathematics departments who do not have doctoral degrees. The majority of these faculty, 3,211 (81%), are found in Groups M and B

Table 1A: Total Faculty, Fall 2008

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
<b>Total full-time faculty</b> (Standard error) <sup>1</sup>	<b>1793</b>	<b>1045</b>	<b>2622</b>	<b>2301</b>	<b>293</b>	<b>8055</b> (61)	<b>4578</b> (69)	<b>9533</b> (361)	<b>22166</b> (367)	<b>1749</b> (35)
Doctoral full-time faculty	1708	1041	2346	1913	282	7289	3635	7265	18189	1659
Tenured	1060	583	1550	1269	168	4631	2535	4820	11985	856
Untenured, tenure-track	208	81	328	394	47	1058	868	1913	3839	417
Postdoctoral appointments	251	259	243	58	39	851	22	18	891	112
Other non-tenure-track	189	118	224	191	28	750	209	514	1473	274
Nondoctoral full-time faculty (Standard error) <sup>1</sup>	85	4	277	389	11	766 (20)	943 (34)	2268 (158)	3977 (161)	89 (6)
<b>Total part-time faculty</b> (Standard error)	<b>193</b>	<b>29</b>	<b>403</b>	<b>521</b>	<b>26</b>	<b>1172</b> (29)	<b>1824</b> (75)	<b>3703</b> (303)	<b>6700</b> (309)	<b>143</b> (13)

<sup>1</sup> See 'Remarks on Statistical Procedures' page 1300.

departments. Table 1G shows the part-time faculty broken down by gender and whether they have a doctoral degree. Comparing Table 1G to last year's table, we see an overall decrease in part-time faculty with the largest decrease (13%) in Group M and B part-time male faculty from 3,467 last year to 3,078 this year; a reflection of the decline in Group B (from 2,319 to 1,692).

### Female Faculty

Table 1B gives a complete breakdown of all categories of female faculty by group. For 2008–2009 the estimated total number of full-time faculty in Groups I, II, III, Va, M, and B combined is 22,166 of which 6,118 are females. Females comprise 28% of the full-time faculty up from 27% (5,891) in 2007–2008. In Group B the estimated number of doctoral female faculty decreased from 1,863 last year to 1,825 this year, tenured female faculty increased from 1,123 to 1,137, untenured but tenure-track female faculty decreased from 620 to 552, and non-tenure-track doctoral female faculty (including postdoctoral appointments) increased from 119 to 136. In Group M the doctoral full-time female faculty increased from 925 last year to 961 this year.

Table 1C compares the number of full-time and female full-time faculty that fall into each reporting group for fall 2008. The percentage who are female in each group is given in the bottom row of Table 1C. These percentages vary considerably among the groups, from a low of 14% for Groups I Public and I Private to a high of 32% for Groups M and B.

Table 1D contains information about the percentage of female faculty among the tenured/tenure-track and non-tenure-track doctoral full-time faculty and among the part-time faculty for the years 2001 to 2008.

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 3,977 nondoctoral full-time faculty in Groups I, II, III, Va, M, and B combined, 2,186 (55%) are females. From Table 1G we see that in these same groups there are 6,700 part-time faculty, of which 2,889 (43%) are females.

### Faculty Recruitment

Table 2A contains detailed information on the number of full-time doctoral faculty positions under recruitment during 2007–2008 for employment beginning in the academic year 2008–2009. Among mathematics departments (Groups I, II, III, Va, M, and B), 2,012 positions were under recruitment, up 13% compared to those under recruitment during 2006–2007. Of those 2,012 positions, 1,776 (88%) were available to new doctoral recipients, and of those 1,776 positions, 1,081 (61%) were tenured/tenure-track positions. The 1,081 tenured/tenure-track positions open to new doctoral recipients is up 16% from the 935 such positions under recruitment in 2006–2007 primarily reflecting increases in Groups I and II. The total number of tenured/tenure-track full-time doctoral positions under recruitment in Groups I, II, III, Va, M, and B combined is 1,213, up from last year's 1,131 (an increase of 7%). In Groups I, II, III, and Va combined, the total number of posted doctoral positions open at the associate/full level decreased from 126 last year to 96 this year.

Table 2B condenses the information in Table 2A. It also reorganizes the doctoral hires into one

**Table 1B: Female Faculty, Fall 2008**

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
<b>Female full-time faculty</b> <i>(Standard error)</i>	253	142	565	586	50	1596 (22)	1455 (28)	3067 (179)	6118 (181)	525 (14)
Doctoral full-time faculty	202	140	388	373	43	1146	961	1825	3932	480
Tenured	72	43	154	183	16	468	577	1137	2182	170
Untenured, tenure-track	55	18	81	110	8	272	311	552	1135	153
Postdoctoral appointments	34	44	51	15	11	154	9	9	172	38
Other non-tenure-track	41	36	102	65	8	251	64	127	442	119
Nondoctoral full-time faculty	51	2	178	213	7	450	494	1242	2186	45
<b>Female part-time faculty</b>	64	4	154	209	7	439	759	1692	2889	54

**Table 1C: Full-Time Faculty, Fall 2008**

	GROUP								
	I Public	I Private	II	III	Va	M	B	IV	TOTAL
<b>Full-time faculty</b>	1793	1045	2622	2301	293	4578	9533	1749	23914
<i>Percentage of total full-time faculty</i>	8%	4%	11%	10%	1%	19%	40%	7%	100%
<b>Female full-time faculty</b>	253	142	565	586	50	1455	3067	525	6643
<i>Percentage of total female full-time faculty</i>	4%	2%	9%	9%	1%	22%	46%	8%	100%
<i>Percentage of total female faculty within group</i>	14%	14%	22%	25%	17%	32%	32%	30%	28%

**Table 1D: Mathematics Faculty Counts and Percentage Female, Fall 2001-2008**

	2001	2002	2003	2004	2005	2006	2007	2008
<b>Groups I, II, III, &amp; Va</b>								
Doctoral full-time faculty								
<b>Tenured/tenure-track</b>	5598	5616	5559	5604	5686	5668	5709	5688
<i>Percentage female</i>	10%	10%	10%	11%	11%	12%	12%	13%
<b>Non-tenure-track</b>	1233	1274	1343	1314	1401	1461	1576	1601
<i>Percentage female</i>	21%	23%	25%	25%	24%	25%	25%	25%
<b>Part-time faculty</b>	1467	1504	1389	1355	1054	1128	1143	1172
<i>Percentage female</i>	38%	35%	35%	37%	37%	40%	37%	37%
<b>Group M</b>								
Doctoral full-time faculty								
<b>Tenured/tenure-track</b>	3191	3188	3005	3113	3351	3400	3325	3403
<i>Percentage female</i>	23%	22%	22%	23%	24%	25%	25%	26%
<b>Non-tenure-track</b>	183	276	230	277	263	283	232	231
<i>Percentage female</i>	24%	39%	33%	48%	36%	28%	38%	32%
<b>Part-time faculty</b>	2323	2393	1952	1888	1842	1493	1868	1824
<i>Percentage female</i>	36%	37%	37%	37%	37%	41%	39%	42%
<b>Group B</b>								
Doctoral full-time faculty								
<b>Tenured/tenure-track</b>	5665	5569	6172	5770	6875	6623	6427	6733
<i>Percentage female</i>	24%	23%	26%	25%	25%	27%	27%	25%
<b>Non-tenure-track</b>	504	507	460	472	516	545	363	532
<i>Percentage female</i>	29%	36%	20%	29%	32%	25%	33%	26%
<b>Part-time faculty</b>	4197	4117	3997	4846	3630	3922	4053	3703
<i>Percentage female</i>	43%	45%	42%	44%	41%	40%	43%	46%

**Table 1E: Summary of Full-Time and Part-Time Faculty, Fall 2008**

	GROUP					
	I, II, III, & Va		M & B		IV	
	Male	Female	Male	Female	Male	Female
<b>Full-time faculty</b>	<b>6459</b>	<b>1596</b>	<b>9589</b>	<b>4522</b>	<b>1224</b>	<b>525</b>
<i>Percentage</i>	80%	20%	68%	32%	70%	30%
Doctoral full-time faculty	6143	1146	8113	2786	1179	480
<i>Percentage</i>	84%	16%	74%	26%	71%	29%
Tenured	4162	468	5641	1714	686	170
<i>Percentage</i>	90%	10%	77%	23%	80%	20%
Untenured, tenure-track	786	272	1918	863	264	153
<i>Percentage</i>	74%	26%	69%	31%	63%	37%
Postdoctoral appointments	697	154	22	18	74	38
<i>Percentage</i>	82%	18%	54%	46%	66%	34%
Other non-tenure-track	498	251	533	191	155	119
<i>Percentage</i>	66%	34%	74%	26%	57%	43%
Nondoctoral full-time faculty	315	450	1475	1736	45	45
<i>Percentage</i>	41%	59%	46%	54%	50%	50%
<b>Part-time faculty</b>	<b>733</b>	<b>439</b>	<b>3077</b>	<b>2450</b>	<b>89</b>	<b>54</b>
<i>Percentage</i>	63%	37%	56%	44%	62%	38%

**Table 1F: Nondoctoral Full-Time Faculty, Fall 2008**

Full-time Faculty	GROUP							
	I, II, III, & Va		M		B		IV	
	Male	Female	Male	Female	Male	Female	Male	Female
<b>Without a Doctorate</b>	<b>315</b>	<b>450</b>	<b>449</b>	<b>494</b>	<b>1026</b>	<b>1242</b>	<b>45</b>	<b>45</b>
Tenured	14	10	67	37	393	242	2	0
Untenured, tenure-track	3	1	13	6	54	179	1	0
Postdoctoral appointments	1	0	0	0	0	0	0	0
Other non-tenure-track	297	439	369	451	579	821	41	45

**Table 1G: Part-Time Faculty, Fall 2008**

Part-time Faculty	GROUP							
	I, II, III, & Va		M		B		IV	
	Male	Female	Male	Female	Male	Female	Male	Female
Doctoral	316	101	227	110	553	219	71	33
Nondoctoral	417	338	839	648	1459	1473	18	21
<b>Total</b>	<b>733</b>	<b>439</b>	<b>1066</b>	<b>759</b>	<b>2012</b>	<b>1692</b>	<b>89</b>	<b>54</b>

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.

This year the estimated total number of new doctoral hires in mathematics departments is up 20% (to 758 from 634) from last year; it is down 6% (to 280 from 298) in Groups I, II, III, and Va combined, and up 43% (to 478 from 335) in Groups M and B combined. The number of new doctoral tenure-track hires in the math groups combined is down 14% as a result of a decrease in Groups M & B combined (down to 226 from 283). Among the new doctoral hires in Groups I, II, III, and Va combined, 19% of all males and 27% of all females took tenure-track positions. In contrast, for new doctoral hires in Groups M and B combined, 24% of all males and 89% of all females took tenure-track positions. From Table 2C we see that in Groups I, II, III, and Va 21% of the hires of new doctoral recipients are in tenured/tenure-track positions (up from 16% last year), while in Groups M and B 47% of the new doctoral hires are in tenured/tenure-track positions (down from 84% last year).

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 1,688 up from 1,385 last year (a increase of 22%); it is down 4% in Groups I, II, III, and Va combined and up 46% in Groups M and B combined. This year Groups I, II, III, and Va combined filled 635 doctoral positions, of which 253 (40%) were tenured/tenure-track positions. Last year these same groups filled 663 doctoral positions, of which 268 (40%) were tenured/tenure-track. Groups M and B combined filled 1,053 doctoral positions this year, and 725 (69%) of these were tenured/tenure-track positions. Last year these two groups filled 722 doctoral positions, of which 543 (75%) were tenured/tenure-track.

Departments were asked to report the number of doctoral hires into tenured/tenure-track positions filled by individuals who held a non-tenure-track position the previous year and of those, how

many were in postdoctoral appointments. For Groups I, II, III, and Va combined, 136 individuals reported having held a non-tenure-track position the previous year (54% of the 253 tenure-track hires), with 86 (34%) having held a postdoctoral appointment the previous year. This compares with last year's figure of 115 (43%) positions filled by individuals who held a postdoctoral appointment the previous year. For Groups M and B combined, 211 individuals (29% of the 723 tenure-track hires) reported having held a non-tenure-track position the previous year, with 44 (6%) having held a postdoctoral appointment the previous year. This compares with last year's figure

**Table 2A: Recruitment of Faculty with a Doctorate, Fall 2008**

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
<b>Posted Doctoral Positions</b>										
<b>Total number<sup>1</sup></b> <i>(Standard error)</i>	<b>170</b>	<b>143</b>	<b>238</b>	<b>147</b>	<b>24</b>	<b>723</b> <i>(21)</i>	<b>327</b> <i>(27)</i>	<b>959</b> <i>(114)</i>	<b>2012</b> <i>(118)</i>	<b>185</b> <i>(20)</i>
Tenured/tenure-track	71	43	126	112	14	367	252	593	1213	152
Open to new doctoral recipients	126	106	186	136	21	575	307	892	1776	129
Tenured/tenure-track	43	9	88	98	11	249	241	589	1081	98
Open at assoc/full level	25	19	25	23	3	96	39	60	195	71
<b>Reported Hires for Above</b>										
<b>Total number</b>	<b>149</b>	<b>129</b>	<b>215</b>	<b>135</b>	<b>18</b>	<b>646</b>	<b>275</b>	<b>893</b>	<b>1816</b>	<b>106</b>
Male doctoral hires	112	101	167	93	14	486	168	587	1243	69
Tenured/tenure-track	35	18	66	62	7	187	131	330	648	64
Female doctoral hires	35	26	46	38	5	148	70	226	444	35
Tenured/tenure-track	14	6	15	29	1	66	57	207	330	26
Male temporary hires	1	1	0	3	0	5	26	71	102	2
Female temporary hires	1	1	3	1	0	6	11	9	26	0
<b>Total new doctoral hires</b>	<b>56</b>	<b>75</b>	<b>90</b>	<b>49</b>	<b>9</b>	<b>280</b>	<b>106</b>	<b>371</b>	<b>758</b>	<b>47</b>
Male new doctoral hires	42	63	67	33	6	210	68	237	515	36
Tenured/tenure-track	4	3	11	21	0	39	44	28	111	26
Female new doctoral hires	14	13	23	16	3	70	38	135	243	10
Tenured/tenure-track	4	0	3	13	0	19	28	126	173	9
<b>Unfilled positions</b>	<b>21</b>	<b>14</b>	<b>23</b>	<b>13</b>	<b>6</b>	<b>77</b>	<b>52</b>	<b>66</b>	<b>196</b>	<b>62</b>

<sup>1</sup> Number of full-time doctoral positions under recruitment in 2007–2008 to be filled for 2008–2009.

**Table 2B: A Summary of Recruitment of Faculty with a Doctorate, Fall 2008**

	GROUP		
	I, II, III, & Va	M & B	IV
<b>Posted Doctoral Positions</b>			
<b>Total number</b>	<b>723</b>	<b>1289</b>	<b>185</b>
Tenured/tenure-track	367	846	152
Open to new doctoral recipients	575	1201	129
Tenured/tenure-track	249	832	98
<b>Reported Hires for Above, excluding temporary hires</b>			
<b>Total doctoral hires</b>	<b>635</b>	<b>1053</b>	<b>104</b>
Tenured/tenure-track	253	725	90
Previously in non-tenure-track	136	211	21
Previously in postdoc	86	45	16
<b>Total new doctoral hires<sup>1</sup></b>	<b>280</b>	<b>478</b>	<b>47</b>
Tenured/tenure-track	58	226	35
Male	210	305	36
Tenured/tenure-track	39	72	26
Female	70	173	10
Tenured/tenure-track	19	154	9
<b>Total not-new doctoral hires</b>	<b>355</b>	<b>575</b>	<b>57</b>
Tenured/tenure-track	195	499	55
Male	276	452	33
Tenured/tenure-track	148	388	38
Female	78	123	24
Tenured/tenure-track	47	110	17

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

of 67 (12%) positions filled by individuals who held a postdoctoral appointment the previous year.

The estimated number of not-new doctoral hires in mathematics departments is 930, up

from 750 last year. The total of not-new doctoral hires into tenured/tenure-track positions in all the mathematics groups combined is 694, up 45% from last year. It is down 11% in Groups I, II, III, and Va combined (to 195 from 220 last year), and up 93% in Groups M and B combined (499 from 259).

Figure 1 shows the number of full-time doctoral positions posted for all groups combined except Group IV, as well as the number of those that were tenured/tenure-track for the years 1996 to 2008. The number of positions posted and the number of available tenured/tenure-track positions steadily increased, reaching a maximum in 2001. Over the last eight years these numbers have shown some variability with this year's total number of posted positions being the highest reported since 2001.

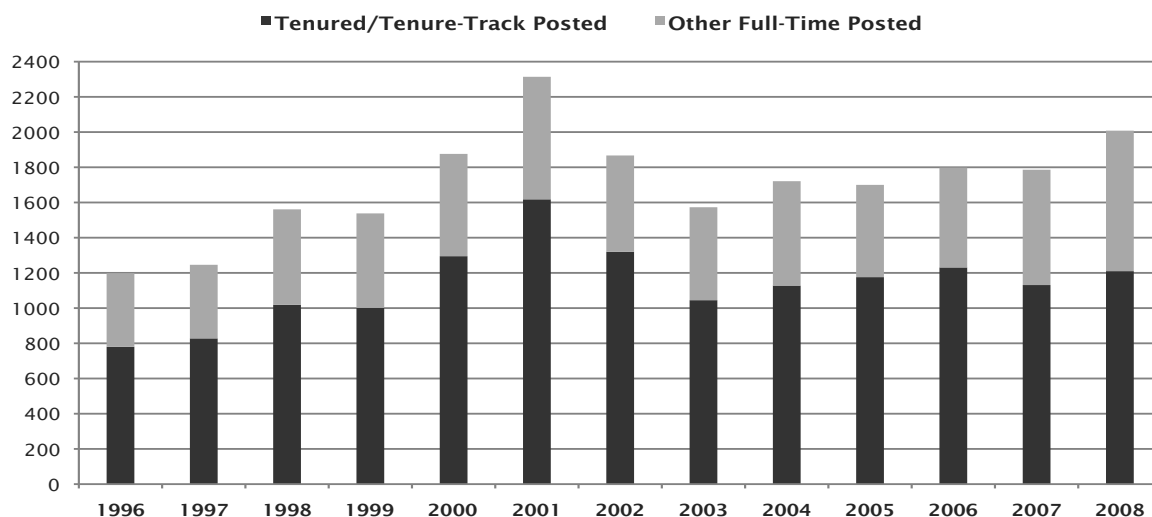
Figure 1A shows the number of full-time doctoral positions filled for all groups combined, except Group IV, as well as the number of tenured/tenure-track for the years 2001 to 2008. This year the number of tenured/tenure-track positions has reached a seven-year high, just slightly higher than the number reported for fall 2001.

**Faculty Attrition**

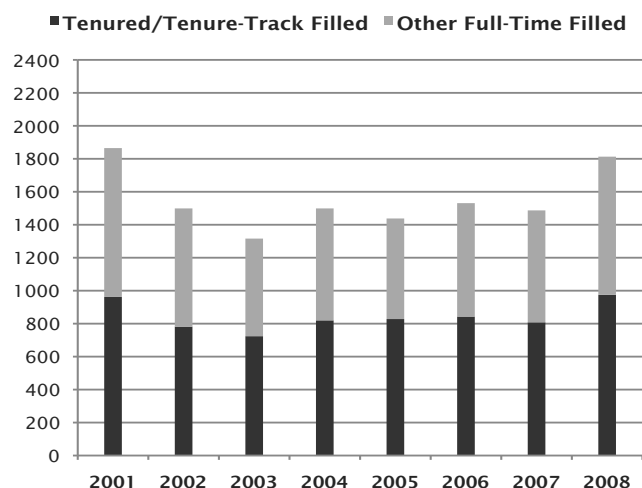
Table 3 displays losses of full-time mathematical sciences faculty due to retirements and deaths between 1 September 2007 and 31 August 2008 for each departmental grouping. The fall 2008 faculty attrition rate for Groups I, II, III, Va, M, and B combined is 2.2%, and it is 1.3% for Group IV. For fall 2008, Group I (Pr) had the lowest attrition rate at 0.9%, while Group I (Pu) had the highest at 2.8%.

Figure 2 shows the trends in these attrition rates between 1995 and 2008. While the rates vary

**Figure 1: Number of Full-Time Doctoral Positions under Recruitment**  
Groups I, II, III, Va, M, & B Combined, Fall 1996 to Fall 2008



**Figure 1A: Number of Full-Time Doctoral Positions Filled**  
Groups I, II, III, Va, M, & B Combined, Fall 2001 to Fall 2008



from group to group and from year to year within each group, for most of the 1990s the dominant trend was one of increasing attrition for all groups combined. In the late 1990s attrition leveled off then began dropping in 2003, reaching the smallest rate of attrition this year.

## Enrollment Profile and Degrees Awarded Profile

The Departmental Profile Survey obtained information about course 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 2008 for each group. The estimated total undergraduate enrollment in fall 2008 for all groups combined is 2,231,000. Table 4A gives these totals for fall 2003 to fall 2008. Total undergraduate enrollments for all groups combined is relatively unchanged from last year; Group B is the only group showing a decline (8%).

The historical data on enrollment numbers presented in Tables 4A and 4B for fall 2003 to fall 2008 suggest a trend of gradually increasing undergraduate and graduate enrollments.

**Table 2C: Positions Posted and Filled, Fall 2008**

Positions	GROUP		
	I, II, III, & Va	M & B	IV
Posted positions opened to new doctoral recipients	575	1201	129
% tenured/tenure-track	43%	69%	76%
Positions filled by new doctoral recipients	280	478	47
% tenured/tenure-track	21%	47%	74%
Positions filled by not-new doctoral recipients <sup>1</sup>	355	575	57
% tenured/tenure-track	55%	87%	96%

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

Table 3: Faculty Deaths & Retirements,<sup>1</sup> Fall 2008

	GROUP									
	I Public	I Private	II	III	Va	I, II, III, & Va	M	B	I, II, III, Va, M, & B	IV
<b>Full-time faculty who retired or died</b>										
Total number (Standard error)	50	9	51	53	6	169 (7)	120 (11)	196 (31)	484 (33)	22 (4)
Percentage	2.8%	0.9%	1.9%	2.3%	2.0%	2.1%	2.6%	2.1%	2.2%	1.3%

<sup>1</sup> Number and percentage of full-time faculty who were in the department in fall 2006 but were reported to have retired or died by fall 2008.

Figure 2: Faculty Retired/Died

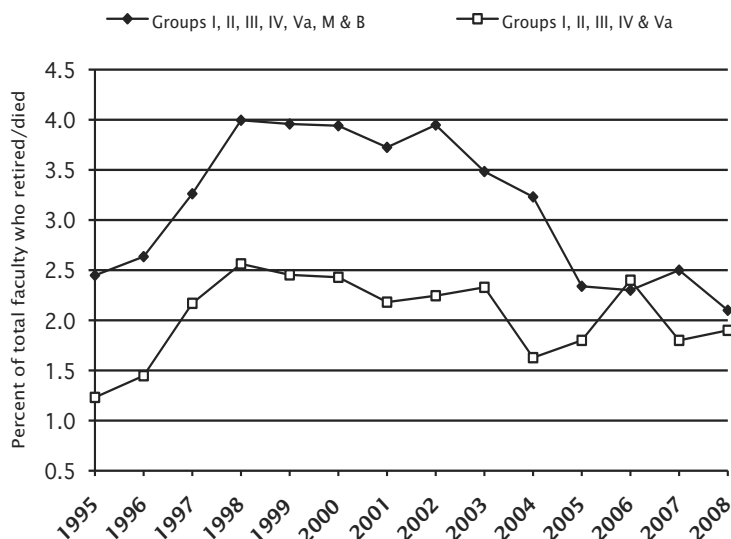


Table 4C gives the undergraduate enrollments per faculty member and the graduate enrollments per faculty member for each group. Table 4D gives the undergraduate enrollments per faculty member in each group for fall 2003 to fall 2008. With fall 2008 we see a slight increase in all groups except Group B. For a comprehensive survey of undergraduate courses, please refer to the report of the 2005 CBMS survey. This publication is available from the AMS website at [www.ams.org/cbms/](http://www.ams.org/cbms/).

**Undergraduate and Master's Degrees**

Tables 5A and 5C display the (estimated) number of undergraduate and master's degrees reported for 2007–2008 for each departmental group. Table 5B shows the total undergraduate degrees awarded for the period 2003–2004 through 2007–2008. The number of undergraduate degrees awarded has increased from 23,930 in 2007 to 26,602 in 2008. Table 5D shows the total number of master's degrees awarded for the period 2003–2004 through 2007–2008. The number of master's degrees awarded in mathematics decreased from 4,291 reported in 2007 to 4,265 reported in 2008.

The reader should be aware that at least 40 of the 188 departments in the 2008 Group M population and at least 277 of the 1,039 departments in the 2008 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 significant fraction of the department's undergraduate degrees. This year's estimated 26,602 undergraduate degrees awarded includes 1,045 in statistics and 2,347 in computer science. (The report of the 2005 CBMS survey provides a more comprehensive study of departmental bachelor's degrees.) Of the 4,265 master's degrees awarded, 375 were in statistics, and 402 were in computer science.

**Graduate Student Profile**

Table 6A summarizes information gathered by the 2008 Departmental Profile survey about graduate students enrolled in fall 2008. This table gives the number of full-time, full-time first-year, and part-time graduate students for each group of graduate departments. These same numbers are also given for female graduate students and for U.S. citizen graduate students.

The estimated total number of graduate students in all mathematics groups combined increased from 14,148 in 2007 to 14,279 in 2008, and the total number of full-time graduate students in Groups I, II, III, and Va combined decreased from 10,937 in 2007 to 10,883 in 2008. The number of U.S. citizen full-time graduate students in Groups I, II, III, and Va combined decreased 2% to 6,012. The number of first-year full-time students in Groups I, II, III, and Va combined decreased from 2,964 last year to 2,924 this year. The number of female full-time graduate students in Groups I, II, III, and Va combined decreased from 3,249 to 3,193.

In Group IV the number of full-time graduate students increased by 7% to 4,499 and the number of U.S. citizen full-time graduate students increased by 13% to 1,876. The first-year full-time graduate students in Group IV increased by 144 to 1,415 and the number of first-year full-time U.S. citizens remained stable at 561. The number of female full-time graduate students in Group IV increased from 2,020 to 2,113, a 5% increase.

The percentage of full-time graduate students who are U.S. citizens in the mathematics groups combined is 55% while the percentage of full-time graduate students who are U.S. citizens in Group IV is 42%; the percentage of women is 32% in mathematics groups combined and 47% in Group IV. The number of full-time graduate students in Group M increased from 3,211 to 3,396.

**Table 4A: Total Undergraduate Course Enrollments (thousands)**

Fall	GROUP								Total
	I Public	I Private	II	III	Va	M	B	IV	
2003	185	41	283	255	17	498	774	72	2125
2004	159	42	277	261	16	492	782	72	2101
2005	177	43	273	249	12	509	872	70	2205
2006	172	43	290	251	15	496	826	77	2170
2007	172	43	297	253	17	474	896	78	2228
2008 (Standard error) <sup>1</sup>	175 (0)	45 (1)	313 (6)	268 (4)	17 (0)	499 (10)	823 (40)	91 (3)	2231 (50)

<sup>1</sup> Standard errors reported as zero reflect rounding of values that are less than 500.

**Table 4B: Total Graduate Course Enrollments (thousands)**

Fall	GROUP							Total
	I Public	I Private	II	III	Va	M	IV	
2003	10	5	11	11	2	16	31	87
2004	9	4	12	10	2	12	31	81
2005	10	4	13	9	2	16	29	84
2006	9	4	13	10	2	15	29	82
2007	10	4	13	12	3	14	32	89
2008 (Standard error) <sup>1</sup>	11 (0)	5 (0)	13 (0)	13 (0)	3 (0)	15 (1)	31 (1)	90 (1)

<sup>1</sup> Standard errors reported as zero reflect rounding of values that are less than 500.

**Table 4C: Undergraduate and Graduate Enrollments per Full-Time Faculty Member, Fall 2008**

Fall	GROUP							
	I Public	I Private	II	III	Va	M	B	IV
<b>Undergraduate Course Enrollments</b> Number per full-time faculty member	97	43	119	117	60	109	86	52
<b>Graduate Course Enrollments</b> Number per full-time faculty member	6	5	5	6	9	3	—	18

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

Fall	GROUP							
	I Public	I Private	II	III	Va	M	B	IV
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
2006	98	43	105	113	56	106	82	45
2007	96	42	109	114	56	105	100	46
2008	97	43	119	117	60	109	86	52

**Table 5A: Undergraduate Degrees Awarded**  
(between July 1, 2007 and June 30, 2008)

	GROUP								
	I Public	I Private	II	III	Va	M	B	I, II, III, Va, M, & B	IV
<b>Total Undergraduate Degrees Awarded</b> <i>(Standard error)</i>	2200 (53)	1039 (23)	2479 (59)	1911 (36)	262 (0)	4963 (332)	13748 (963)	26602 (1023)	563 (43)
Statistics only	35	4	66	84	0	161	694	1045	323
Computer science only	14	13	7	114	0	520	1681	2347	11
<b>Female Undergraduate Degrees Awarded</b>	626	269	888	783	73	1984	6244	10868	241
Statistics only	10	2	35	30	0	61	314	453	139
Computer science only	3	2	1	16	0	134	336	492	1

**Table 5B: Undergraduate Degrees Awarded**  
Groups I, II, III, Va, M & B Combined

Fall	2004	2005	2006 <sup>1</sup>	2007	2008
<b>Total Undergraduate Degrees Awarded</b>	24395	23432	24638	23930	26602
<b>Female Undergraduate Degrees Awarded</b> <i>Percentage female</i>	10223 42%	9264 40%	9964 40%	9310 39%	10868 41%

<sup>1</sup> Numbers in this column reflect corrections of those previously reported. For further information visit at <http://www.ams.org/employment/surveyreports.html>.

The (estimated) number of part-time graduate students in Groups I, II, III, and Va remained relatively stable at 1,719 this year, and in Group IV increased 19% to 1,088. Group III has 891 (52%) 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 76% are U.S. citizens, and in Group IV 49% of the part-time graduate students are females and 47% are U.S. citizens. The number of Group M part-time graduate students decreased from 2,467 to 2,243. For Group M, 49% of the part-time graduate students are females and 89% 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 for fall 1999 through fall 2008 and the percentage of underrepresented minorities in each category for fall 2003 through fall 2008. From these data we can see that the total number of full-time graduate students in the doctoral mathematics groups had been generally increasing since 1999 reaching a high in 2006; enrollment has decreased slightly for the second consecutive year to 10,883. Similarly, the percent of full-time graduate students who are U.S. citizens, which had been increasing gradually since 2001, has dropped slightly this year. The percent of first-year full-time graduate students who are U.S. citizens had been increasing until 2004, when it reached 60%. After dropping slightly the next two years, it remains stable at 56% 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 2008 Annual Survey First Preliminary, First Report, Part II, and Second Reports were published in the *Notices of the AMS* in the February, March, and August 2009 issues respectively. The previous

**Table 5C: Master's Degrees Awarded, Fall 2008**

	GROUP								
	I Public	I Private	II	III	Va	M	I, II, III, Va & M	IV	
<b>Total Master's Degrees Awarded</b> <i>(Standard error)</i>	398 (0)	316 (24)	695 (22)	802 (18)	152 (0)	1902 (108)	4265 (114)	1410 (70)	
Statistics only	38	3	41	131	3	159	375	1036	
Computer science only	3	0	0	44	0	354	402	12	
<b>Female Master's Degrees Awarded</b>	100	76	287	308	38	922	1731	696	
Statistics only	13	2	24	66	1	86	192	506	
Computer science only	2	0	0	11	0	182	195	5	

version of this report, the 2007 Annual Survey Third Report was published in the *Notices of the AMS* in the November 2008 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](http://www.ams.org/employment/surveyreports.html).

### Acknowledgements

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 AMS 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.

**Table 5D: Master's Degrees Awarded**  
Groups I, II, III, Va, M & B Combined

Fall	2004	2005	2006 <sup>1</sup>	2007	2008
<b>Total Master's Degrees Awarded</b>	4620	4254	4267	4291	4265
<b>Female Master's Degrees Awarded</b> <i>Percentage female</i>	2054 44%	1699 40%	1808 42%	1717 40%	1731 41%

<sup>1</sup> Numbers in this column reflect corrections of those previously reported. For further information visit at <http://www.ams.org/employment/surveyreports.html>.

**Table 6A: Graduate Students, Fall 2008**

	GROUP								
	I Public	I Private	II	III	Va	I, II, III, & Va	M	I, II, III, Va, & M	IV
<b>Total Graduate Students</b>									
<b>Full-time</b>	2865	1571	3401	2359	687	10883	3396	14279	4499
<i>(Standard error)</i>						(90)	(254)	(302)	(137)
<b>First-year full-time</b>	608	460	921	737	197	2924	1206	4129	1415
<i>(Standard error)</i>						(35)	(71)	(103)	(67)
<b>Part-time</b>	167	209	355	891	98	1719	2243	3963	1088
<i>(Standard error)</i>						(44)	(209)	(237)	(101)
<b>Female Graduate Students</b>									
<b>Full-time</b>	681	420	1077	833	181	3193	1309	4502	2113
<b>First-year full-time</b>	145	121	296	259	49	870	511	1382	688
<b>Part-time</b>	69	31	157	362	33	652	1106	1758	538
<b>U.S. Citizen Graduate Students</b>									
<b>Full-time</b>	1601	686	2059	1305	362	6012	2440	8452	1876
<i>(Standard error)</i>						(57)	(173)	(192)	(62)
<b>First-year full-time</b>	342	181	563	443	114	1643	818	2461	561
<b>Part-time</b>	134	117	302	692	64	1310	2002	3312	516
<i>(Standard error)</i>						(34)	(165)	(182)	(70)

**Table 6B: Full-Time Graduate Students in Groups I, II, III, & Va**  
by Sex and Citizenship, Fall 1999–2008

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Total full-time graduate students</b>	8838	9637	9361	9972	10444	10707	10565	10984	10937	10883
Female	2766	3016	2899	3136	3215	3245	3111	3279	3249	3193
% Female	31%	31%	31%	31%	31%	30%	29%	30%	30%	29%
% U.S. citizen	53%	53%	49%	51%	54%	55%	56%	56%	56%	55%
% Underrepresented minorities <sup>1</sup>					10.0%	9.0%	10.0%	9.0%	9.0%	9.0%
<b>Total first-year graduate students</b>	2664	2839	2875	2996	2711	3004	2832	2960	2964	2924
Female	866	879	1014	1038	902	983	851	961	950	870
% Female	33%	31%	35%	35%	33%	33%	30%	32%	32%	30%
% U.S. citizen	53%	54%	53%	55%	56%	60%	59%	55%	56%	56%
% Underrepresented minorities					12.0%	9.0%	10.0%	10.0%	10.0%	10.0%

<sup>1</sup> Underrepresented minorities includes any person having origins within the categories *American Indian or Alaska Native, Black or African American, Hispanic or Latino, and Native Hawaiian or Other Pacific Islander*.

## 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*.<sup>1</sup> These rankings update those reported in a previous study published in 1982.<sup>2</sup> 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 V contains U.S. doctoral-granting departments (or programs) of applied mathematics/applied science, operations research, and management science.

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](http://www.ams.org/outreach).

<sup>1</sup>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.

<sup>2</sup>These findings were published in An Assessment of Research-Doctorate Programs in the United States: Mathematical and Physical Sciences, edited by Lyle V. Jones, Gardner Lindzey, and Porter E. Coggshall, 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.

## Remarks on Statistical Procedures

The questionnaire on which this report is based, “*Departmental Profile*”, is sent to every doctoral department and starting with 2006 to every master's department. It is sent to a stratified random sample of Group B departments, the stratifying variable being the undergraduate enrollment at the institution.

The response rates vary substantially across the different department groups. For the doctoral departments it ranges between 60 and 80 percent. For Group M it ranges between 50 and 60 percent. For Group B, the response from the approximately 334 sampled departments drawn from the 1,039 total bachelor's departments typically ranges between 40 and 50 percent. For most of the data collected on the Departmental Profile form, the year-to-year changes in a given department's data are very small when compared to the variations among the departments within a given group. As a result of this, the most recent prior year's response is used for a nonresponding department, provided the response is within three years of the current survey. After the inclusion of prior responses, standard adjustments for the remaining nonresponse are then made to arrive at the estimates reported for the entire groups.

Beginning with the 2007 Annual Survey, standard errors were calculated for some of the key estimates for Groups I, II, III, and Va combined, for Groups M and B, and for Group IV. Standard errors are calculated using the variability in the data and can be used to 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 4,578, with a standard error of 69. This means the actual number of full-time faculty in Group M is most likely between 4,578 plus or minus two standard errors, or between 4,701 and 4,425. This is much more informative than simply giving the estimate of 4,578.

Estimates are also given for parameters that are totals from all groups, such as the total number of full-time faculty. For example, an estimate of the total number of full-time faculty in all groups but group IV is 22,166, with a standard error of 367. Standard errors, when calculated for an estimate, appear in the tables in parentheses underneath the estimate.