

## Report on the 2002–2003 New Doctoral Recipients

This report presents a statistical profile of recipients of doctoral degrees awarded by departments in the mathematical sciences at universities in the United States during the period July 1, 2002, through June 30, 2003. It includes a preliminary analysis of the fall 2003 employment plans of 2002–03 doctoral recipients and a demographic profile summarizing characteristics of citizenship status, sex, and racial/ethnic group. All information came from the departments that gave the degrees.

**Table 1: Doctorates Granted Response Rates**

<b>Group I (Pu)</b>	25 of 25 including	0 with 0 degrees
<b>Group I (Pr)</b>	21 of 23 including	0 with 0 degrees
<b>Group II</b>	54 of 56 including	4 with 0 degrees
<b>Group III</b>	70 of 73 including	21 with 0 degrees
<b>Group IV</b>	74 of 86 including	12 with 0 degrees
<b>Group Va</b>	21 of 23 including	5 with 0 degrees

Table 1 provides the departmental response rates for the 2003 Survey of New Doctoral Recipients. See page 233 for a description of the groups. No adjustments were made in this report for nonresponding departments.

This preliminary report will be updated in the Second Report of the 2003 Annual Survey using information gathered from the new doctoral recipients. The Second Report will appear in the August 2004 issue of the *Notices of the AMS*.

Changes in the Annual Survey occur over time, and these changes need to be considered when comparing results in this report to those in prior years. Information about changes that occurred in 1997 or later can be found in the First Report for the 2000 Annual Survey in the February 2001 issue of the *Notices of the AMS*.

In this First Report’s tables referring to new doctoral recipients, “Fall” refers to results based on information about new doctoral recipients received from departments granting their degrees. This information is gathered in the first fall following the academic year in which the degrees were granted. “Final” refers to results based on supplemental information received from the new doctoral recipients themselves as well as additional new doctoral recipients not reported by departments in time for publication in the First Report. These results are published each August in the Second Report.

### Doctoral Degrees Granted in 2002–03

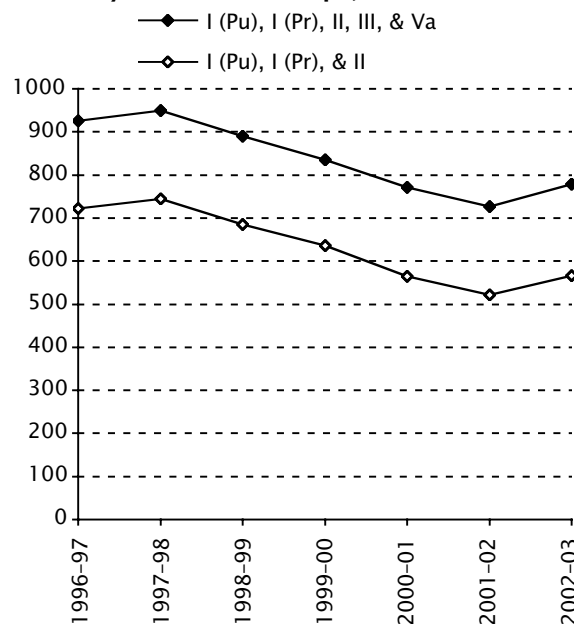
Table 2 shows the number of new doctoral degrees granted by the different doctoral groups surveyed in the Annual Survey for the past seven years. The 1,017 new doctorates granted by these departments in 2002–03 is an increase of 69 from the fall count for 2001–02. Figure 1 presents the trends in doctorates granted for Groups I (Pu), I (Pr), II, III, and Va combined and Groups I (Pu), I (Pr), and II combined.

**Table 2: New Doctoral Degrees Awarded by Group, Fall Count**

Group	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
1996–97	297	187	238	132	197	72	1123
1997–98	306	174	264	129	213	77	1163
1998–99	292	152	241	136	243	69	1133
1999–00	256	157	223	132	284	67	1119
2000–01	233	129	203	125	237	81	1008
2001–02	218	139	164	124	222	81	948
2002–03	258	138	170	121	239	91	1017

See “Definitions of the Groups” on page 233.

**Figure 1: New Doctoral Degrees Awarded by Combined Groups, Fall Count**



Group I (Pu) shows the largest increase (40), while Groups II, IV, and Va also had an increase. Groups I (Pr) and III showed only slight decreases of 1 and 3 respectively. The response rates were above 90% for every group except Group IV, which historically has had slightly lower response rates than the other groups. Two fewer departments responded in time for the First Report this year than responded by this time last year.

**Table 3: Full-Time Graduate Students in Groups I, II, III, & Va, Fall 1993 to Fall 2002**

GRADUATE STUDENTS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total full-time	10525	10185	9761	9476	9003	8791	8838	9637	9361	997
First-year full-time	2762	2668	2601	2443	2386	2510	2664	2839	2875	2996
U.S. citizen full-time	5865	5945	5623	5445	4947	4831	4668	5085	4631	5055
First-year U.S. citizen full-time	1700	1664	1551	1465	1316	1349	1401	1527	1517	1630

(Data Reprinted from Table 6B in Third Report, 2002 Annual Survey)

The 1,017 new doctoral recipients is a preliminary count. A final count will appear in the Second Report in the August 2004 issue of the *Notices of the AMS*. Efforts are under way to obtain data from as many of the nonresponding departments as possible. A careful look at the past history of the nonresponding departments makes it unlikely that the final count of new doctoral recipients will increase by more than 35.

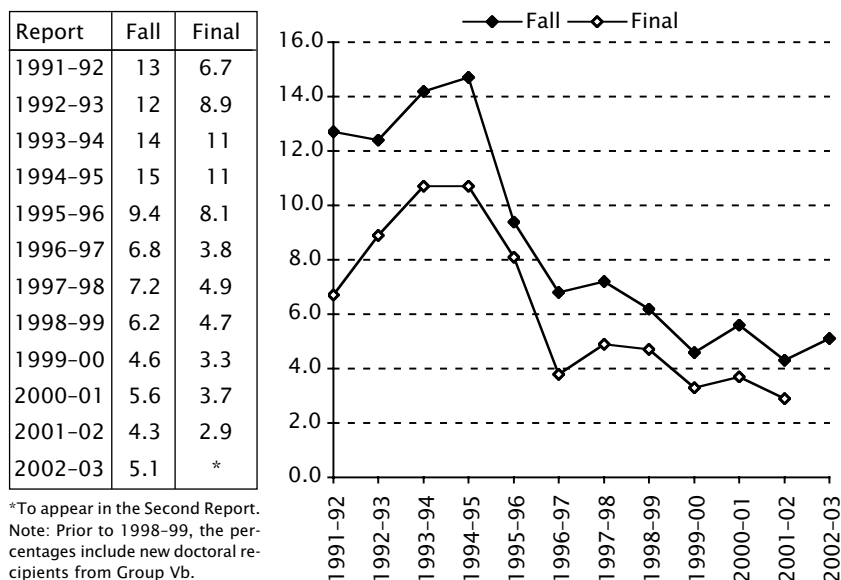
From Table 2 we see that while the number of doctoral recipients from Group I (public) is up this year, it is still 48 below its high of 1997-98. The number of doctoral recipients from Group I (private) continues a decline evident in all but two years in the table. The number of doctoral recipients from Group II is up this year, but still 94 below its high in 1997-98. The number of doctoral recipients from Group III is still declining slowly, down 15 from its high in 1998-99. The number of doctoral recipients from Group IV is up over last year, but down 45 from its high in 1999-2000. The number of doctoral recipients from Group Va is at the highest level in Table 2.

Table 3 gives historical information about various types of full-time graduate students in Groups

I, II, III, and Va combined. These data, gathered in the 2002 Departmental Profile survey, are reprinted from Table 6B of the Third Report of the 2002 Annual Survey (*Notices of the AMS*, September 2003). It sheds some light on the downward trend in number of new doctorates as shown in Table 2 and Figure 1. The total number of full-time graduate students fell from 10,525 in 1993 to 8,791 in 1998 and has increased to 9,972 in fall 2002. The number of first-year full-time graduate students fell from 2,762 in 1993 to 2,386 in 1997 and has increased to 2,996 in fall 2002. Full-time first-year U.S. citizen graduate students fell from 1,700 in 1993 to 1,316 in 1997 and was 1,630 in fall 2002. The increase in new doctoral recipients reported for 2002-03 may be the first indication of a moderate trend upward over the next few years, most likely a result of the rebound in first-year full-time graduates starting in the fall of 1998.

The 2002-03 numbers in Table 2 will be broken down in various ways, such as by sex, in later sections of this report. The names of the 1,017 new doctoral recipients are found on pages 246-263 of this issue of the *Notices*.

**Figure 2: Percentage of New Doctoral Recipients Unemployed (as reported in the respective Annual Survey Reports 1992-2003)**



\*To appear in the Second Report. Note: Prior to 1998-99, the percentages include new doctoral recipients from Group Vb.

**Employment Status of 2002-03 New Doctoral Recipients**

Tables 4A, 4B, and 4C each provide a different cross-tabulation of the 1,017 new doctoral recipients in the mathematical sciences. These tables contain a wealth of information about these new doctoral recipients, some of which will be discussed in this report. Note that these tables give a breakdown by sex for type of employer, type of degree-granting department, and field of thesis. Keep in mind that the results in this report come from the departments giving the degrees and not from the degree recipients themselves. These tables will be revised using information from the doctoral recipients themselves and will appear in the 2003 Second Report in the August 2004 issue of the *Notices of the AMS*.

The last column (Total) in Table 4A can be used to find the overall unemployment rate. In this and other unemployment calculations in this report, the individuals whose employment status is not known (Unknown (U.S.) and Unknown (non-U.S.))

**Table 4A: Employment Status of 2002-03 U.S. New Doctoral Recipients in the Mathematical Sciences by Field of Thesis**

TYPE OF EMPLOYER	FIELD OF THESIS												TOTAL	
	Algebra Number Theory	Real, Comp., & Harmonic Analysis	Geometry/Topology	Discr. Math./Combin./Logic/Comp. Sci.	Probability	Statistics/Biostat.	Applied Math.	Numerical Analysis/Approximations	Linear Nonlinear Optim./Control	Differential, Integral, & Difference Equations	Math. Educ.	Other/Unknown		
Group I (Public)	24	7	13	4	5	0	5	6	1	12	0	1	78	
Group I (Private)	10	4	9	3	1	2	3	0	1	14	0	0	47	
Group II	7	3	9	3	2	2	9	3	4	9	2	0	53	
Group III	0	4	1	3	0	10	1	1	1	3	1	0	25	
Group IV	0	0	1	0	2	36	0	0	0	0	0	0	39	
Group Va	0	0	0	2	1	0	4	2	0	0	0	0	9	
Master's	8	9	6	3	3	6	4	2	0	2	3	2	48	
Bachelor's	30	11	16	8	1	7	6	7	4	13	5	0	108	
Two-Year College	0	0	0	0	0	0	1	1	0	1	0	0	3	
Other Academic Dept.	7	3	2	5	3	56	15	3	1	6	6	0	107	
Research Institute/Other Nonprofit	3	0	0	3	0	10	0	1	0	0	0	0	17	
Government	6	0	1	2	2	11	3	4	0	3	0	0	32	
Business and Industry	9	5	2	8	4	49	11	5	3	1	0	0	97	
Non-U.S. Academic	22	4	10	8	0	14	6	14	2	15	1	0	96	
Non-U.S. Nonacademic	2	1	1	0	0	4	1	2	0	2	0	0	13	
Not Seeking Employment	1	1	0	0	0	5	0	2	0	1	0	0	10	
Still Seeking Employment	8	1	3	2	0	8	7	4	3	6	0	0	42	
Unknown (U.S.)	11	10	9	8	0	34	17	8	1	6	1	4	109	
Unknown (non-U.S.)*	12	8	9	6	5	19	14	6	0	4	1	0	84	
<b>TOTAL</b>	<b>160</b>	<b>71</b>	<b>92</b>	<b>68</b>	<b>29</b>	<b>273</b>	<b>107</b>	<b>71</b>	<b>21</b>	<b>98</b>	<b>20</b>	<b>7</b>	<b>1017</b>	
<b>Column</b>	<b>Male</b>	124	58	67	52	21	161	75	54	18	72	6	5	713
<b>Subtotals</b>	<b>Female</b>	36	13	25	16	8	112	32	17	3	26	14	2	304

\*Includes those whose status is reported as "unknown" or "still seeking employment".

**Table 4B: Employment Status of 2002-03 U.S. New Doctoral Recipients in the Mathematical Sciences by Type of Degree-Granting Department**

TYPE OF EMPLOYER	TYPE OF DOCTORAL DEGREE-GRANTING DEPARTMENT						TOTAL	Row Subtotals	
	Group I (Public) Math.	Group I (Private) Math.	Group II Math.	Group III Math.	Group IV Statistics	Group Va Applied Math.		Male	Female
Group I (Public)	44	19	9	2	0	4	78	59	19
Group I (Private)	18	23	1	0	2	3	47	38	9
Group II	17	5	23	3	2	3	53	39	14
Group III	2	1	5	10	4	3	25	19	6
Group IV	1	2	1	0	35	0	39	20	19
Group Va	1	0	0	0	1	7	9	6	3
Master's	8	1	19	14	6	0	48	25	23
Bachelor's	20	11	45	19	7	6	108	73	35
Two-Year College	0	0	3	0	0	0	3	1	2
Other Academic Dept.	10	8	11	12	52	14	107	66	41
Research Institute/Other Nonprofit	2	6	0	0	9	0	17	8	9
Government	5	2	8	2	8	7	32	19	13
Business and Industry	19	13	5	8	45	7	97	74	23
Non-U.S. Academic	33	20	11	14	13	5	96	75	21
Non-U.S. Nonacademic	2	2	3	2	2	2	13	12	1
Not Seeking Employment	2	0	2	2	4	0	10	7	3
Still Seeking Employment	7	8	8	11	4	4	42	27	15
Unknown (U.S.)	34	8	9	13	31	14	109	81	28
Unknown (non-U.S.)*	33	9	7	9	14	12	84	64	20
<b>TOTAL</b>	<b>258</b>	<b>138</b>	<b>170</b>	<b>121</b>	<b>239</b>	<b>91</b>	<b>1017</b>	<b>713</b>	<b>304</b>
<b>Column</b>	<b>Male</b>	201	112	120	67	141	72	713	
<b>Subtotals</b>	<b>Female</b>	57	26	50	54	98	19	304	

\*Includes those whose status is reported as "unknown" or "still seeking employment".

**Table 4C: Field of Thesis of 2002–03 New Doctoral Recipients by Type of Degree-Granting Department**

TYPE OF DOCTORAL DEGREE-GRANTING DEPARTMENT	FIELD OF THESIS												TOTAL
	Algebra Number Theory	Real, Comp., Funct., & Harmonic Analysis	Geometry/Topology	Discr. Math./Combin./Logic/Comp. Sci.	Probability	Statistics/Biostat.	Applied Math.	Numerical Analysis/Approximations	Linear Nonlinear Optim./Control	Differential, Integral, & Difference Equations	Math. Educ.	Other/Unknown	
Group I (Public)	72	33	41	21	11	4	16	15	5	38	1	1	258
Group I (Private)	34	8	24	14	5	7	19	7	1	17	0	2	138
Group II	39	17	23	10	5	6	21	18	7	21	2	1	170
Group III	13	13	3	11	2	17	11	19	1	14	17	0	121
Group IV	0	0	0	0	4	230	2	0	0	0	0	3	239
Group Va	2	0	1	12	2	9	38	12	7	8	0	0	91
<b>Column Total</b>	<b>160</b>	<b>71</b>	<b>92</b>	<b>68</b>	<b>29</b>	<b>273</b>	<b>107</b>	<b>71</b>	<b>21</b>	<b>98</b>	<b>20</b>	<b>7</b>	<b>1017</b>

are first removed, and the unemployment fraction is the number still seeking employment divided by the total number of individuals left after the “Unknowns” are removed. The overall unemployment rate for these data is 5.1%. This figure will be updated later with information gathered from the individual new doctoral recipients.

The figure for fall 2002 was 4.3%. Figure 2 shows how this unemployment rate compares with other years over the past decade. The unemployment rates, calculated using Table 4B, vary from group to group, with a high of 11.1% for Group III and lows of 2.1% and 3.7% for Groups IV and I (Public) respectively.

There are 663 new doctoral recipients employed in the U.S. Table 5A gives a breakdown of type of employer by type of degree-granting department for these 663 new doctoral recipients. Of these, 534 (81%) hold academic positions, 32 (5%) are employed by government, and 97 (15%) hold positions in business and industry.

In the First Report for 2001–02, there were 664 new doctoral recipients employed in the U.S., of which

**Table 5A: U.S. Employed 2002–03 New Doctoral Recipients by Type of Degree-Granting Department**

U.S. EMPLOYER	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
Groups I, II, III, IV, and Va	83	50	39	15	44	20	251
Master’s, Bachelor’s, and 2-Year Colleges	28	12	67	33	13	6	159
Other Academic and Research Institutes	12	14	11	12	61	14	124
Government	5	2	8	2	8	7	32
Business and Industry	19	13	5	8	45	7	97
<b>Total</b>	<b>147</b>	<b>91</b>	<b>130</b>	<b>70</b>	<b>171</b>	<b>54</b>	<b>663</b>

503 (76%) held academic positions, 38 (6%) were in government, and 123 (19%) were in business and industry. The number of new doctoral recipients employed in academic positions in the U.S. increased in the two categories “Master’s, Bachelor’s, and Two-Year Colleges” and “Other Academic and Research Institutes”, while the number employed in the cate-

gory “Groups I, II, III, IV, and Va” decreased.

Table 5B shows the number of new doctoral recipients who took positions in business and industry by the type of department granting their degree for fall 1999 to fall 2003. The number of new doctoral recipients taking jobs in business and industry, which had been rising steadily in the mid-1990s and oscillating in the late 1990s, has now had drops three consecutive years of 38 in fall 2001, 45 in fall 2002, and 26 in fall 2003. Among

**Table 5B: Number of New Doctoral Recipients Taking Positions in Business and Industry in the U.S. by Type of Degree-Granting Department, Fall 1999 to Fall 2003**

Group	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
Fall 1999	28	19	23	19	57	14	160
Fall 2000	31	23	34	25	79	14	206
Fall 2001	24	15	25	21	59	24	168
Fall 2002	15	12	19	6	56	15	123
Fall 2003	19	13	5	8	45	7	97

the 663 new doctoral recipients known to have employment in the U.S. in fall 2003, Group II has the smallest percentage taking jobs in business and industry at 4% and Group IV the highest at 26%.

Table 5C shows the number of new doctoral recipients who took academic positions in the U.S. by type of department granting their degree for fall 1999 to fall 2003. It also shows a moderate rebound in the total number of new doctoral recipients taking academic employment in fall 2003, compared with the previous two years. Among the 663 new doctoral recipients employed in the U.S. in fall 2003, 81% have academic positions. This percentage is highest for Group II at 90% and lowest for Groups IV at 69% and Va at 74%.

Table 5D shows how many positions were filled with new doctoral recipients for each type of academic employer. All of the increase in positions filled by new doctoral recipients was accounted for by Groups M, B, and “Other Academic and Research Institutes”.

In fall 2003, 60 new doctoral recipients held positions in the institution that granted their degree, although not necessarily in the same department.

**Table 5C: Number of New Doctoral Recipients Taking U.S. Academic Positions by Type of Degree-Granting Department, Fall 1999 to Fall 2003**

Group	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
Fall 1999	157	87	130	70	82	38	564
Fall 2000	133	78	112	75	126	27	551
Fall 2001	146	70	109	74	84	27	510
Fall 2002	120	83	91	86	92	31	503
Fall 2003	123	76	117	60	118	40	534

**Table 5D: U.S. Academic Positions Filled by New Doctoral Recipients by Type of Hiring Department, Fall 1999 to Fall 2003**

Group	I-III	IV	Va	M&B	Other	TOTAL
Fall 1999	221	49	17	175	102	564
Fall 2000	209	46	13	158	125	551
Fall 2001	199	41	12	161	97	510
Fall 2002	213	46	7	138	99	503
Fall 2003	203	39	9	156	127	534

This represents 8% of new doctoral recipients who are currently employed and 11% of the U.S. academic positions held by new doctoral recipients. In fall 2002 there were 61 such individuals making up 8% of the new doctoral recipients who were employed at the time of the First Report. Ten new doctoral recipients have taken part-time positions in fall 2003 compared with 9 in fall 2002.

**Information about 2002-03 Female New Doctoral Recipients**

Tables 4A and 4B give male and female breakdowns of the new doctoral recipients in 2002-03 by Field of Thesis, by Type of Degree-Granting Department, and by Type of Employer.

Overall, 304 (30%) of the 1,017 new doctoral recipients in 2002-03 are female. In 2001-02, 290 (31%) of the new doctoral recipients were female. This percentage varies over the different groups, and these percentages are given in the first row of Table 5E. This year the percentage of females produced is highest for Group III at 45%, while last year it was highest in Group IV. While the lowest percentage last year was for Group Va at 20%, this year it is for Group I (Pr) at 19%.

The second row of Table 5E gives the percentage of the new doctoral recipients hired who are female for each of the Groups I, II, III, IV, and Va. In addition, 48% of the new doctoral recipients

hired in Group M, master's departments, are female; 32% of the new doctoral recipients hired in Group B, bachelor's departments, are female; and 24% of new doctoral recipients hired in business and industry are female.

**Table 5E: Females as a Percentage of 2002-03 New Doctoral Recipients Produced by and Hired by Doctoral-Granting Groups**

%	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
Produced	22	19	29	45	41	21	30
Hired	24	19	26	24	49	33	28

The unemployment rate for female new doctoral recipients is 6% compared to 5% for males and 5.1% overall.

The percentage of female new doctoral recipients within fields of thesis ranged from 14% in optimization/control to 41% in statistics and 70% in mathematics education.

Later sections in this First Report give more information about the female new doctoral recipients by citizenship and the female new doctoral recipients in Group IV.

**Employment Information about 2002-03 New Doctoral Recipients by Citizenship and Type of Employer**

Table 5F shows the pattern of employment within employer categories broken down by citizenship status of the new doctoral recipients.

The unemployment rate for the 489 U.S. citizens is 5.3% compared to 4.8% in fall 2002. The unemployment rate for non-U.S. citizens is 4.9%. This varies by type of visa. The unemployment rate for non-U.S. citizens with a permanent visa is 16.2%, while that for non-U.S. citizens with a temporary visa is 4.1%. Last year the unemployment rate for non-U.S. citizens with a permanent visa was only 5.1%, but since this category has a relatively small number of people, this percentage can show much variability.

Among U.S. citizens whose employment status is known, 90% are employed in the U.S. Among non-U.S. citizens with a permanent visa whose employment status is known, 81% have jobs in the U.S., while the percentage for non-U.S. citizens with a temporary visa is 68%.

Table 5G is a cross-tabulation of the 663 new doctoral recipients who have employment in the U.S. by citizenship and broad employment categories, using numbers from Table 5F. Of the 663 new doctoral recipients having jobs in the U.S., 57% are U.S. citizens. Of the 251 new doctoral recipients who took jobs in U.S. doctoral-granting departments, 52% are U.S. citizens. Of the 283 who took other academic positions, 61% are U.S. citizens. Of the 129 who took nonacademic posi-

**Table 5F: Employment Status of 2002–03 U.S. New Doctoral Recipients by Citizenship Status**

TYPE OF EMPLOYER	CITIZENSHIP				TOTAL
	U.S. CITIZENS	NON-U.S. CITIZENS			
		Permanent Visa	Temporary Visa	Unknown Visa	
U.S. Employer	376	30	231	26	663
U.S. Academic	303	25	187	19	534
Groups I, II, III, and Va	108	7	86	11	212
Group IV	22	2	14	1	39
Non-Ph.D. Department	165	16	79	6	266
Research Institute/Other Nonprofit	8	0	8	1	17
U.S. Nonacademic	73	5	44	7	129
Non-U.S. Employer	13	1	93	2	109
Non-U.S. Academic	11	1	83	1	96
Non-U.S. Nonacademic	2	0	10	1	13
Not Seeking Employment	8	0	2	0	10
Still Seeking Employment	22	6	14	0	42
SUBTOTAL	419	37	340	28	824
Unknown (U.S.)	69	11	25	4	109
Unknown (non-U.S.)*	1	0	65	18	84
<b>TOTAL</b>	<b>489</b>	<b>48</b>	<b>430</b>	<b>50</b>	<b>1017</b>

\*Includes those whose status is reported as "unknown" or "still seeking employment".

**Table 5G: 2002–03 New Doctoral Recipients Having Employment in the U.S. by Type of Employer and Citizenship**

U.S. EMPLOYER	CITIZENSHIP		TOTAL
	U.S.	Non-U.S.	
Academic, Groups I–Va	130	121	251
Academic, Other	173	110	283
Nonacademic	73	56	129
<b>Total</b>	<b>376</b>	<b>287</b>	<b>663</b>

tions, 57% are U.S. citizens. Of the 376 U.S. citizens employed in the U.S., 35% have jobs in a doctoral-granting department, 46% are in other academic positions, and 19% are in nonacademic positions. For the 287 non-U.S. citizens employed in the U.S., the analogous percentages are 42%, 38%, and 20% respectively.

**Sex, Race/Ethnicity, and Citizenship Status of 2002–03 New Doctoral Recipients**

Table 6 presents a breakdown of new doctoral recipients according to sex, racial/ethnic group, and citizenship status. The information reported in this table was obtained in summary form from the departments granting the degrees.

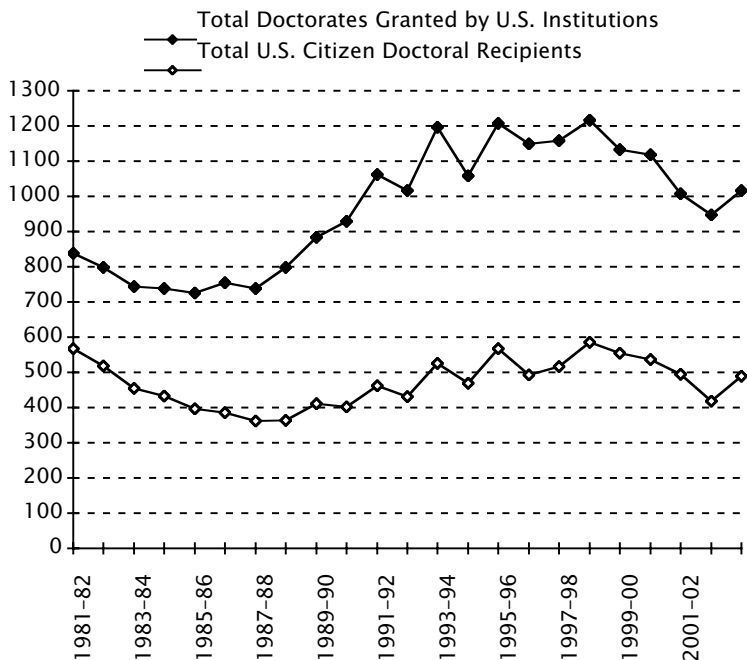
There were 489 (48%) U.S. citizens among the 1,017 new doctoral recipients in 2002–03. Among U.S. citizens, 1 is American Indian or Alaska Native (male), 24 are Asian (13 males and 11 females), 16 are Black or African American (8 males and 8 females), 12 are Hispanic or Latino (7 males and 5 females), 405 are White (277 males and 128 females), and 31 are other. Among non-U.S. citizens, there are 4 American Indians or Alaska Natives, 240 Asians, 14 Blacks or African Americans, 47 Hispanics or Latinos, 214 Whites, and 9 other.

Table 7 and Figure 3 give the number of new U.S. doctoral recipients and the number of U.S. citizens back to 1980–81. The 489 U.S. citizen new doctoral recipients is down by 97 (20%) since 1997–98. The percentage of U.S. citizens, which

**Table 6: Sex, Race/Ethnicity, and Citizenship of 2002–03 U.S. New Doctoral Recipients**

RACIAL/ETHNIC GROUP	MALE					FEMALE					TOTAL
	U.S. CITIZENS	NON-U.S. CITIZENS			Total Male	U.S. CITIZENS	NON-U.S. CITIZENS			Total Female	
		Permanent Visa	Temporary Visa	Unknown Visa			Permanent Visa	Temporary Visa	Unknown Visa		
American Indian or Alaska Native	1	0	3	0	4	0	0	0	1	1	5
Asian	13	6	147	17	183	11	8	56	6	81	264
Black or African American	8	3	9	0	20	8	2	0	0	10	30
Hispanic or Latino	7	1	30	3	41	5	2	10	1	18	59
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0	0	0	0	0	0
White	277	14	128	14	433	128	11	42	5	186	619
Unknown	26	0	5	1	32	5	1	0	2	8	40
<b>TOTAL</b>	<b>332</b>	<b>24</b>	<b>322</b>	<b>35</b>	<b>713</b>	<b>157</b>	<b>24</b>	<b>108</b>	<b>15</b>	<b>304</b>	<b>1017</b>

Figure 3: U.S. Citizen Doctoral Recipients



dropped last year to 44% after remaining steady at 48%–49% during 1997–2001, has increased to 48% this year.

Females make up 32% of the 489 U.S. citizens receiving doctoral degrees in the mathematical sciences in 2002–03. Last year this percentage was 30%, and in 1998–99 it was 34%, the highest percentage of females among U.S. citizen new doctoral recipients ever reported by the Annual

Figure 4: Females as a Percentage of U.S. Citizen New Doctoral Recipients

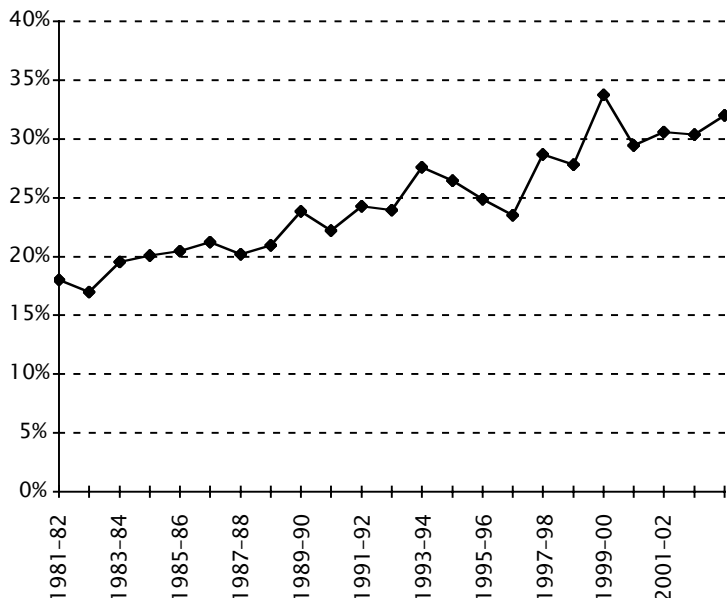


Table 7: U.S. Citizen Doctoral Recipients

Year	Total Doctorates Granted by U.S. Institutions	Total U.S. Citizen Doctoral Recipients	%
1980–81	839	567	68
1985–86	755	386	51
1990–91	1061	461	43
1995–96	1150	493	43
1996–97	1158	516	45
1997–98	1216	586	48
1998–99*	1133	554	49
1999–00	1119	537	48
2000–01	1008	494	49
2001–02	948	418	44
2002–03	1017	489	48

\*Prior to 1998–99, the counts include new doctoral recipients from Group Vb. In addition, prior to 1982–83, the counts include recipients from computer science departments.

Survey. Among the 528 non-U.S. citizen new doctoral recipients, 147 (28%) are female, down from last year’s 31%.

Table 8 and Figure 4 give the historical record of U.S. citizen new doctoral recipients, broken down by male and female for past years, going back to 1980–81. The number of male U.S. citizen new doctoral recipients increased by 41 from 2001–02 but is down by 91 (21%) from 1997–98. The number of female U.S. citizen new doctoral recipients is down 30 (16%) from an all-time high of 187 in 1998–99.

Table 9 gives a sex and citizenship breakdown of the new doctorates within each of the six types of doctoral-granting departments. Among all 1,017 new doctoral recipients, 46% of the males and 52% of the females are U.S. citizens. Within the groups the percentage of the new doctoral recipients who are U.S. citizens is lowest in Group I (Pr) at 44% and

Table 8: U.S. Citizen Doctoral Recipients by Sex

Year	Total U.S. Citizen Doctoral Recipients		% Female
	Male	Female	
1980–81	465	102	18
1985–86	304	82	21
1990–91	349	112	24
1995–96	377	116	24
1996–97	368	148	29
1997–98	423	163	28
1998–99*	367	187	34
1999–00	379	158	29
2000–01	343	151	31
2001–02	291	127	30
2002–03	332	157	32

\*Prior to 1998–99, the counts include new doctoral recipients from Group Vb. In addition, prior to 1982–83, the counts include recipients from computer science departments.

**Table 9: Sex and Citizenship of 2002-03 New Doctoral Recipients by Granting Department**

CITIZENSHIP	GROUP												TOTAL	
	I (Pu)		I (Pr)		II		III		IV		Va			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
U.S.	89	28	50	11	63	29	29	27	59	50	42	12	332	157
Non-U.S.	112	29	62	15	57	21	38	27	82	48	30	7	381	147
<b>TOTAL</b>	<b>201</b>	<b>57</b>	<b>112</b>	<b>26</b>	<b>120</b>	<b>50</b>	<b>67</b>	<b>54</b>	<b>141</b>	<b>98</b>	<b>72</b>	<b>19</b>	<b>713</b>	<b>304</b>

highest in Group Va at 59%. Groups II and Va are the only groups to have more U.S. citizen than non-U.S. citizen new doctoral recipients in 2002-03.

**2002-03 New Doctoral Recipients with Dissertations in Statistics/Biostatistics and Probability**

Group IV contains U.S. departments (or programs) of statistics, biostatistics, and biometrics reporting a doctoral program. In the Annual Survey Reports, Group IV is referred to as the Statistics Group. In addition, other groups in the Annual Survey produce new doctoral recipients with dissertations in statistics/biostatistics and probability. The other groups produced 68 new doctoral recipients with dissertations in statistics/biostatistics and probability in 2002-03 and have averaged 79 per year over the past seven years. Information about these 68 new doctoral recipients and the 239 new doctoral recipients in Group IV is found in this section of the report.

For eight years substantial effort has gone into making Group IV an appropriate set of departments for the Annual Survey and increasing the number of Group IV departments that respond to the Annual Survey. Table 10 contains information about new doctoral recipients in Group IV as well as those with dissertations in statistics/biostatistics and probability in other groups for the past seven years. The last two rows of table 10 give a split of the 2002-03 results between the 55 statistics departments and the 31 biostatistics and biometrics departments in Group IV. Quite a bit of the

variation in numbers from year to year in this table is due to the changes made in the departments in Group IV over the seven years and to the relatively low response rate for this group. At the time of the Second Report last year, 77 of 86 (90%) of Group IV departments had responded, which is the largest percentage ever.

Group IV has 86 departments for 2002-03, 13 more than the next largest doctoral group. It contains 30% of all doctoral departments surveyed, and the 74 Group IV departments responding to the Annual Survey reported 239 new doctoral recipients, 24% of all new doctoral recipients in 2002-03. The number of new doctoral recipients in Group IV is up 17 from the number reported at this time last year, the number of departments responding is also up two from the number responding by this time last year.

Because of its size, the data from Group IV have a large effect on the results when all doctoral groups are combined. Furthermore, Group IV results are often quite different from those for Groups I (Pu), I (Pr), II, III, and Va. Group IV results can mask important changes in the other doctoral groups. In the following paragraphs some of these differences are presented.

Table 9 shows that for the Group IV new doctoral recipients, 98 of 239 (41%) are female, while 206 of 778 (26%) are female in the other doctoral groups. Among U.S. citizens, females accounted for 50 of the 109 (46%) Group IV new doctoral recipients, while for the other groups 107 of 380 (28%)

**Table 10: Information about New Doctoral Recipients with Dissertations in Statistics/Biostatistics and Probability**

Year	Depts Surveyed	Depts Responding (percent)	New Doctoral Recipients in Group IV				New Doctoral Recipients in Statistics/Biostatistics and Probability				New Doctoral Recipients Hired by Group IV	
			Total	Female (percent)	Jobs in Bus & Ind	Percentage Unemployed	Total	Group IV	Other Groups	Percentage Unemployed	Male	Female
1996-97	81	60 (74)	197	74 (38)	70	4.2	292	187	105	5.1	24	9
1997-98	82	59 (72)	213	73 (34)	70	3.2	294	199	95	3.7	25	10
1998-99	91	72 (79)	243	87 (36)	57	4.9	320	240	80	5.8	29	20
1999-00	89	75 (84)	284	110 (39)	79	2.4	351	278	73	2.0	24	22
2000-01	86	70 (81)	237	98 (41)	59	5.1	289	221	68	5.3	27	14
2001-02	86	72 (84)	222	92 (41)	56	6.0	288	221	67	5.0	31	15
2002-03	86	74 (86)	239	98 (41)	45	2.0	302	234*	68**	3.0	20	19
Statistics	55	51 (93)	175	61 (35)	39	2.0					13	12
Biostatistics	31	23 (74)	64	37 (58)	6	1.0					7	7

\* Of 234, there were 230 in statistics/biostatistics and 4 in probability. For complete details, see Table 4C.

\*\* Of 68, there were 43 in statistics/biostatistics and 25 in probability. For complete details, see Table 4C.



were female. Overall, 157 of 489 (32%) U.S. citizen new doctoral recipients were female.

In Group IV, 109 of 239 (46%) new doctoral recipients are U.S. citizens, while in other groups 380 of 778 (49%) are U.S. citizens.

Of the 171 new doctoral recipients from Group IV who found employment in the U.S., 45 (26%) took jobs in business or industry. From the other groups, 492 new doctoral recipients found employment in the U.S., of which 52 (11%) took jobs in business or industry.

The employment status for 194 Group IV new doctoral recipients is known, and 4 (2.1%) are unemployed. For the other groups, the employment status of 630 is known, and 38 (6.0%) are unemployed. Nineteen of 39 (49%) new doctoral recipients hired by Group IV departments were female, up from last year's 33% but comparable to the 48% reported in 1999-2000. The other doctoral groups reported that 51 of 212 (24%) new doctoral recipients hired were female, down from last year's 27% but significantly more than the 16% reported in 1999-2000.

Group IV had 234 new doctoral recipients with fields of thesis in statistics/biostatistics (230) and probability (4), and the other doctoral departments had 68 with field of thesis in statistics/biostatistics (43) and probability (25). The distribution of these 68 degrees among the various groups can be found in Table 4C. The number of new doctoral recipients with theses in statistics/biostatistics and probability (302) is substantially larger than any other field, with algebra and number theory next with 160.