

2005 Annual Survey of the Mathematical Sciences

(First Report)

Report on the 2004–2005 New Doctoral Recipients Faculty Salary Survey

Ellen E. Kirkman, James W. Maxwell, and Colleen Rose

The First Report of the 2005 Annual Survey gives a broad picture of 2004–05 new doctoral recipients from U.S. departments in the mathematical sciences, including their employment status in fall 2005. The First Report also presents salary data for faculty members in U.S. departments of mathematical sciences in four-year colleges and universities. This report is based on information collected from two questionnaires distributed to departments in May 2005. A follow-up questionnaire was distributed to the individual new doctoral recipients in October 2005. This questionnaire will be used to update and revise results in this report, which are based on information from the departments that produced the new doctorates. Those results will be published in the Second Report of the 2005 Annual Survey in the August 2006 issue of the *Notices of the AMS*. Another questionnaire concerned with data on fall 2005 course enrollments, majors, graduate students, and departmental faculty was distributed to departments in September 2005. Results from this questionnaire will appear in the Third Report of the 2005 Annual Survey in the September 2006 issue of the *Notices of the AMS*.

The 2005 Annual Survey represents the forty-ninth in an annual series begun in 1957 by the American Mathematical Society. The 2005 Survey is conducted by staff at the American Mathematical Society with guidance from 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 Amy Cohen-Corwin, Donald M. Davis, Nicholas M. Ercolani, J. Douglas Faires, Naresh Jain, Donald R. King, Ellen E. Kirkman (chair), David J. Lutzer, James W. Maxwell (ex officio), Polly Phipps, David E. Rohrlich, and Henry Schenck. The committee is assisted by AMS survey analyst Colleen Rose. Comments or suggestions regarding this Survey Report may be directed to the members of the Data Committee.

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Report on the 2004–2005 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, 2004, through June 30, 2005. It includes a preliminary analysis of the fall 2005 employment plans of 2004–05 doctoral recipients and a demographic profile summarizing characteristics of citizenship status, sex, and racial/ethnic group. All information came from the departments that awarded the degrees.

Table 1: Doctorates Granted Response Rates

Group I (Pu)	23 of 25 including 0 with 0 degrees
Group I (Pr)	18 of 23 including 0 with 0 degrees
Group II	51 of 56 including 3 with 0 degrees
Group III	68 of 73 including 19 with 0 degrees
Group IV	63 of 87 including 1 with 0 degrees
Group Va	17 of 23 including 2 with 0 degrees

See "Definitions of the Groups" on page 245.

Table 1 provides the departmental response rates for the 2005 Survey of New Doctoral Recipients. See page 245 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 2005 Annual Survey using information gathered from the new doctoral recipients. The Second Report will appear in the August 2006 issue of the *Notices of the AMS*.

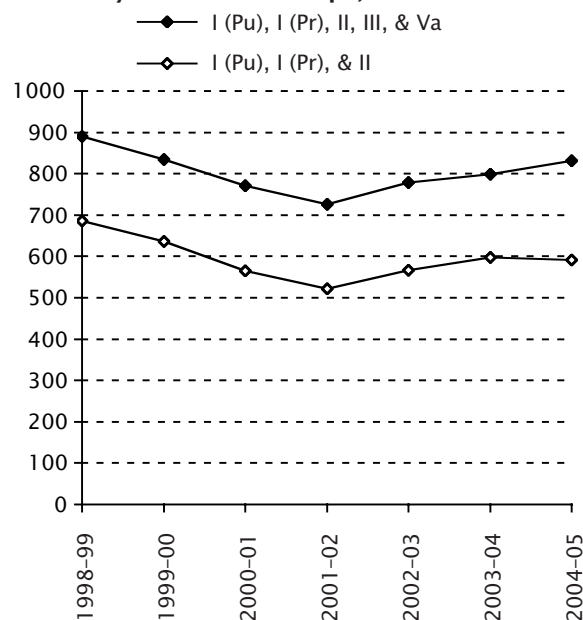
Changes in the Annual Survey occur over time, and these changes need to be considered when comparing results in this report to those in prior years. Information about changes that occurred in 1997 or later can be found in the First Report for the 2000 Annual Survey in the February 2001 issue of the *Notices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

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

Group	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
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
2003-04	195	187	215	111	243	90	1041
2004-05	243	146	203	153	285	86	1116

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



Highlights

- There were 1,116 new doctoral recipients reported for 2004-05 by departments responding in time for the 2005 First Report. This is the highest number reported since 1999-2000.
- Groups I (Pu) reported the largest increase (48) in new doctoral recipients, but the number of new doctoral recipients last year was a 10-year low. This year Groups III and IV reached seven-year highs of 153 and 285, respectively.
- Only 433 (39%) of the new doctoral recipients for 2004-05 are U.S. citizens. The percentage of new doctoral recipients who are U.S. citizens is the lowest percentage observed in the past ten years.
- Based on responses from departments alone, the fall 2005 unemployment rate for the 950 new doctoral recipients whose employment status is known is 7.3%, up from 5.7% for fall 2004.
- Fifty-seven new doctoral recipients hold positions at the institution that granted their degree, although not necessarily in the same department. This is 8% of the new doctoral recipients who are currently known to have jobs and 9% of those who have academic positions in the U.S. Twenty-three new doctoral recipients have part-time positions.
- The number of new doctoral recipients employed in the U.S. is 751, up 12 from last year. The number of new doctoral recipients employed in academic positions in the U.S. decreased slightly to 602 from 614 last year (a 2% decrease from a nine-year high).
- Of the 751 new doctoral recipients taking positions in the U.S., 115 (15%) have jobs in business and industry; the number of new doctoral recipients taking jobs in business and industry, after oscillating in the late 1990s, declined three consecutive years (2001, 2002, and 2003), and now shows a slight increase for the second consecutive year, up 16 (16%) from last year. The number of new doctoral recipients taking jobs in government is up 8 (31%) over fall 2004.
- Among the 751 new doctoral recipients having employment in the U.S., 325 (43%) are U.S. citizens (down from 338 (46%) last year). The number of non-U.S. citizens having employment in the U.S. is 426, up 6% from 401 last year.
- Among the 288 new doctoral recipients hired by U.S. doctoral-granting departments, 38% are U.S. citizens (same as last year). Among the 314 having other academic positions in the U.S., 51% are U.S. citizens.
- Of the 1,116 new doctoral recipients, 330 (30%) are females, up just 15 from fall 2004. Of the 433 U.S. citizen new doctoral recipients, 120 (28%) are females, down 15 from fall 2004.
- Among the 433 U.S. citizen new doctoral recipients, 1 is American Indian or Alaska Native, 21 are Asian, 14 are Black or African American, 12 are Hispanic or Latino, 380 are White, 3 are Native Hawaiian or Other Pacific Islander, and 3 are Other.
- Group IV produced 285 new doctorates, of which 126 (44%) are females, compared to all other groups combined, where 204 (25%) are females. In Group IV, 79 (28%) of the new doctoral recipients are U.S. citizens (while in the other groups 43% are U.S. citizens).
- Three hundred seventy-four new doctorates had a dissertation in statistics/ biostatistics (345) or probability (29), an 18% increase over last year. The next highest number was in algebra and number theory with 161. Those with dissertations in statistics/biostatistics and probability accounted for 31% of the new doctorates in 2004-05.

Table 3: Full-Time Graduate Students in Groups I, II, III, & Va, Fall 1995 to Fall 2004

GRADUATE STUDENTS	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total full-time	9761	9476	9003	8791	8838	9637	9361	9972	10444	10707
First-year full-time	2601	2443	2386	2458	2664	2839	2875	2996	2711	3004
U.S. citizen full-time	5623	5445	4947	4831	4668	5085	4631	5055	5590	5877
First-year U.S. citizen full-time	1551	1465	1316	1349	1401	1527	1517	1630	1527	1803

(Data Reprinted from Table 6B in Third Report, 2004 Annual Survey)

Doctoral Degrees Granted in 2004-05

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 1,116 new doctorates granted by these departments in 2004-05 is an increase of 75 from the fall count for 2003-04. 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.

The response rates were above 90% for all groups except Groups I (Pr), IV and Va. Response rates decreased in all groups, except Group II which remained the same. Overall, thirteen fewer departments responded in time for the First Report this year than responded last year.

The 1,116 new doctoral recipients is a preliminary count. A final count will appear in the Second Report in the August 2006 issue of the *Notices of the AMS*. Efforts continue to obtain data from as many of the nonresponding departments as possible.

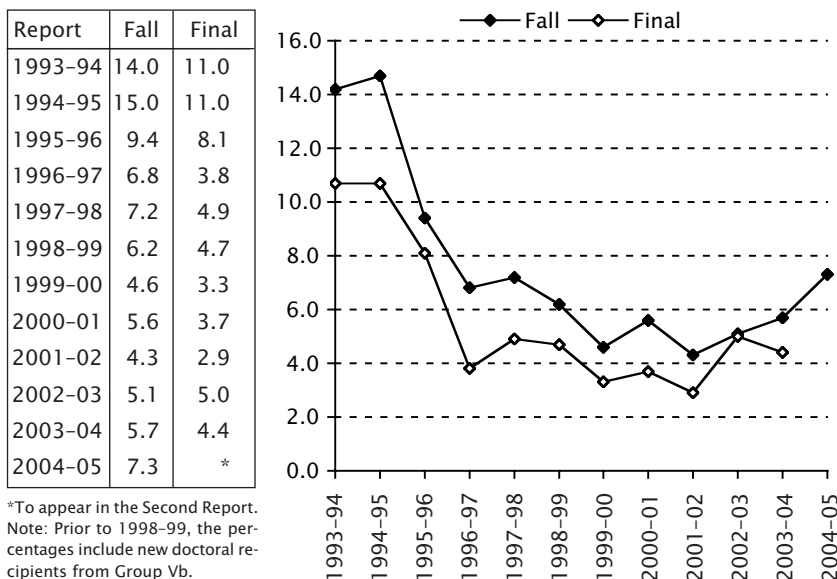
From Table 2 we see that Group I (Pu) showed the largest increase (48) in the number of doctoral

recipients from the previous year (which was the lowest number for Group I (Pu) in the last 10 years), while Groups III and IV also had increases that put them at their highest numbers in the last seven years. Groups I (Pr), II, and Va showed decreases of 41, 12, and 4 respectively.

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 2004 Departmental Profile survey, are reprinted from Table 6B of the Third Report of the 2004 Annual Survey (*Notices of the AMS*, September 2005). It sheds some light on the upward trend in number of new doctorates as shown in Table 2 and Figure 1. First-year graduate enrollment has been generally increasing since 1997, with relatively large increases in 1999 and 2000; these increases in first-year graduate enrollment are likely to be related to this year's increase in new Ph.D.'s. The continuing increase in graduate enrollment shown in Table 3 suggests that numbers of new Ph.D.'s will continue a generally upward trend over the next few years.

The 2004-05 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 1,116 new doctoral recipients are found on pages 258-276 of this issue of the *Notices*.

Figure 2: Percentage of New Doctoral Recipients Unemployed (as reported in the respective Annual Survey Reports 1993-2005)



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

Employment Status of 2004-05 New Doctoral Recipients

Tables 4A, 4B, and 4C each provide a different cross-tabulation of the 1,116 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

Table 4A: Employment Status of 2004-05 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., 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)	17	8	11	8	1	0	5	5	2	16	0	0	73	
Group I (Private)	12	5	14	7	0	1	4	0	1	6	0	0	50	
Group II	17	7	9	4	5	3	7	4	1	9	0	0	66	
Group III	3	8	2	6	1	11	2	3	1	3	1	1	42	
Group IV	0	1	1	0	2	40	1	0	0	0	0	0	45	
Group Va	1	0	0	0	0	0	4	3	2	2	0	0	12	
Master's	12	2	5	6	3	16	5	3	3	13	1	0	69	
Bachelor's	26	14	12	19	1	15	7	7	6	8	4	0	119	
Two-Year College	1	0	2	2	1	1	0	0	0	0	0	0	7	
Other Academic Dept.	7	1	2	5	2	53	10	8	0	6	3	0	97	
Research Institute/ Other Nonprofit	3	1	0	0	0	12	2	0	1	3	0	0	22	
Government	1	1	2	1	0	14	6	5	3	1	0	0	34	
Business and Industry	2	3	4	3	7	75	13	3	0	5	0	0	115	
Non-U.S. Academic	21	6	18	14	5	17	13	5	3	10	1	0	113	
Non-U.S. Nonacademic	3	0	0	0	0	7	0	0	0	0	0	0	10	
Not Seeking Employment	1	1	0	1	0	3	1	0	0	0	0	0	7	
Still Seeking Employment	10	4	4	11	1	16	11	3	0	8	1	0	69	
Unknown (U.S.)	9	7	6	2	0	25	17	2	1	6	1	0	76	
Unknown (non-U.S.)*	15	4	5	5	0	36	8	4	3	9	1	0	90	
TOTAL	161	73	97	94	29	345	116	55	27	105	13	1	1116	
Column	Male	132	57	77	75	24	192	86	41	17	80	4	1	786
Subtotals	Female	29	16	20	19	5	153	30	14	10	25	9	0	330

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

Table 4B: Employment Status of 2004-05 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)	36	19	9	4	0	5	73	58	15
Group I (Private)	20	27	2	0	0	1	50	40	10
Group II	18	14	25	3	3	3	66	54	12
Group III	6	1	8	17	10	0	42	29	13
Group IV	0	3	2	2	37	1	45	26	19
Group Va	0	1	3	1	0	7	12	8	4
Master's	12	6	22	15	8	6	69	38	31
Bachelor's	27	10	41	27	12	2	119	90	29
Two-Year College	3	0	3	0	0	1	7	6	1
Other Academic Dept.	5	4	11	14	50	13	97	60	37
Research Institute/ Other Nonprofit	4	3	4	0	11	0	22	14	8
Government	6	2	6	3	11	6	34	20	14
Business and Industry	5	9	14	15	64	8	115	82	33
Non-U.S. Academic	42	23	14	11	17	6	133	87	26
Non-U.S. Nonacademic	2	1	0	0	7	0	10	7	3
Not Seeking Employment	1	1	1	0	3	1	7	5	2
Still Seeking Employment	13	12	13	10	11	10	69	44	25
Unknown (U.S.)	24	2	12	15	16	7	76	51	25
Unknown (non-U.S.)*	19	8	13	16	25	9	90	67	23
TOTAL	243	146	203	153	285	86	1116	786	330
Column	Male	192	120	158	97	159	786		
Subtotals	Female	51	26	45	56	126	330		

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

Table 4C: Field of Thesis of 2004–05 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)	68	20	40	25	6	12	20	8	8	35	1	0	243
Group I (Private)	42	9	32	19	5	2	13	8	2	14	0	0	146
Group II	42	21	19	23	10	6	24	16	9	33	0	0	203
Group III	9	23	4	20	2	33	23	9	3	15	12	0	153
Group IV	0	0	0	0	3	280	1	0	0	0	0	1	285
Group Va	0	0	2	7	3	12	35	14	5	8	0	0	86
Column Total	161	73	97	94	29	345	116	55	27	105	13	1	1116

Table 5A: U.S. Employed 2004–05 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	80	65	49	27	50	17	288
Master’s, Bachelor’s, and 2-Year Colleges	42	16	66	42	20	9	195
Other Academic and Research Institutes	9	7	15	14	61	13	119
Government	6	2	6	3	11	6	34
Business and Industry	5	9	14	15	64	8	115
TOTAL	142	99	150	101	206	53	751

in the 2005 Second Report in the August 2006 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.)) 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 7.3%. This figure will be updated later with information gathered from the individual new doctoral recipients. The figure for fall 2004 was 5.7%. 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 14.3% for Group Va and lows of 4.5% and 6.5% for Groups IV and I (Pu) respectively.

There are 751 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 751 new doctoral recipients. Of these, 602 (80%) hold academic positions, 34 (5%) are employed by government, and 115 (15%) hold positions in business and industry.

In the First Report for 2003–04, there were 739 new doctoral recipients employed in the U.S., of which 614 (83%) held academic positions, 26 (4%) were in

Table 5B: Number of New Doctoral Recipients Taking Positions in Business and Industry in the U.S. by Type of Degree-Granting Department, Fall 2001 to Fall 2005

Group	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
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
Fall 2004	9	13	9	9	50	9	99
Fall 2005	5	9	14	15	64	8	115

Table 5C: Number of New Doctoral Recipients Taking U.S. Academic Positions by Type of Degree-Granting Department, Fall 2001 to Fall 2005

Group	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
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
Fall 2004	110	113	130	70	142	49	614
Fall 2005	131	88	130	83	131	39	602

Table 5D: U.S. Academic Positions Filled by New Doctoral Recipients by Type of Hiring Department, Fall 2001 to Fall 2005

Group	I–III	IV	Va	M&B	Other	TOTAL
Fall 2001	199	41	12	161	97	510
Fall 2002	213	46	7	138	99	503
Fall 2003	203	39	9	156	127	534
Fall 2004	222	63	17	154	158	614
Fall 2005	231	45	12	188	126	602

Table 5E: Females as a Percentage of 2004–05 New Doctoral Recipients Produced by and Hired by Doctoral-Granting Groups

Percent	I (Pu)	I (Pr)	II	III	IV	Va	TOTAL
Produced	21	18	22	37	44	30	30
Hired	21	20	18	31	42	33	25

government, and 99 (13%) were in business and industry. The number of new doctoral recipients employed in the U.S. decreased in all categories of Table 5A except “Master’s, Bachelor’s and Two-Year Colleges”, “Government”, and “Business and Industry”; “Other Academic and Research Institutes” is down 17% this year over last year, and “Master’s, Bachelor’s and Two-Year Colleges” is up 16% this year over last year.

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 2001 to fall 2005. The number of new doctoral recipients taking jobs in business and industry oscillated in the late 1990s, declined three consecutive years (2001, 2002, and 2003), and the past two years shows a slight increase (up 16% from fall 2004). The fall 2005 number is down 32% from the fall 2001 number. The number of new doctoral recipients taking jobs in government is up 8 (31%) over fall 2004.

Among the 751 new doctoral recipients known to have employment in the U.S. in fall 2005, Group I (Pu) has the smallest percentage taking jobs in business and industry at 4% and Group IV the highest at 31%.

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 2001 to fall 2005. After reaching a nine-year high of 614 last year, the number of new doctoral recipients taking academic employment in fall 2005 has dropped 2%. Among the 751 new doctoral recipients employed in the U.S. in fall 2005, 80% have academic positions. This percentage is highest for Group I (Pu) at 92% and lowest for Groups IV at 64%.

Table 5D shows the number of positions filled with new doctoral recipients for each type of academic employer. Increases in positions filled by new doctoral recipients were realized by all groups except Groups IV, Va, and Other.

In fall 2005, 57 new doctoral recipients held positions in the institution that granted their degree, although not necessarily in the same department. This represents 6.5% of new doctoral recipients who are currently employed and 9% of the U.S. academic positions held by new doctoral recipients. In fall 2004 there were 58 such individuals making up 7% of the new doctoral recipients who were employed at the time of the First Report. Twenty-three new doctoral recipients have taken part-time positions in fall 2005 compared with 19 in fall 2004.

Information about 2004–05 Female New Doctoral Recipients

Tables 4A and 4B give male and female breakdowns of the new doctoral recipients in 2004–05 by Field of Thesis, by Type of Degree-Granting Department, and by Type of Employer.

Table 5G: 2004–05 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	108	180	288
Academic, Other	160	154	314
Nonacademic	57	92	149
TOTAL	325	426	751

Table 5F: Employment Status of 2004–05 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	325	61	352	13	751
U.S. Academic	268	43	280	11	602
Groups I, II, III, and Va	100	18	116	9	243
Group IV	8	1	36	0	45
Non-Ph.D. Department	155	21	114	2	292
Research Institute/Other Nonprofit	5	3	14	0	22
U.S. Nonacademic	57	18	72	2	149
Non-U.S. Employer	23	2	96	2	123
Non-U.S. Academic	21	2	89	1	113
Non-U.S. Nonacademic	2	0	7	1	10
Not Seeking Employment	6	0	1	0	7
Still Seeking Employment	20	9	40	0	69
SUBTOTAL	374	72	489	15	950
Unknown (U.S.)	53	9	14	0	76
Unknown (non-U.S.)*	6	1	74	9	90
TOTAL	433	82	577	24	1116

*Includes those whose status is reported as “unknown” or “still seeking employment”.

Table 6: Sex, Race/Ethnicity, and Citizenship of 2004–05 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	0	0	1	0	0	0	0	0	1
Asian	14	18	205	6	243	7	15	115	4	141	384
Black or African American	6	1	19	0	26	8	0	1	0	9	35
Hispanic or Latino	8	3	24	1	36	4	3	5	0	12	48
Native Hawaiian or Other Pacific Islander	1	0	0	0	1	2	0	1	0	3	4
White	277	22	162	8	469	103	15	46	1	165	634
Unknown	3	1	3	0	7	0	1	2	0	3	10
TOTAL	310	45	413	15	783	124	34	170	5	333	1116

Overall, 330 (30%) of the 1,116 new doctoral recipients in 2004–05 are female. In 2003–04, 315 (30%) 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 again for Group IV at 44%, compared with 40% last year. While the lowest percentage last year was for Group I (Pu) at 23%, this year it is for Group I (Pr) at 18%.

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, 45% of the new doctoral recipients hired in Group M, master's departments, are female; 24% of the new doctoral recipients hired in Group B, bachelor's departments, are female; and 29% of new doctoral recipients hired in business and industry are female.

The unemployment rate for female new doctoral recipients is 9% compared to 7% for males and 7.3% overall.

The percentage of female new doctoral recipients within fields of thesis ranged from 17% in probability, to 44% in statistics, and 69% 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 2004–05 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 433 U.S. citizens is 5.3% compared to 6.1% in fall 2004. The unemployment rate for non-U.S. citizens is 8.5%. This

varies by type of visa. The unemployment rate for non-U.S. citizens with a permanent visa is 12.5%, while that for non-U.S. citizens with a temporary visa is 8.2%. Among U.S. citizens whose employment status is known, 87% are employed in the U.S. Among non-U.S. citizens with a permanent visa whose employment status is known, 85% have jobs in the U.S. (same as last year), while the percentage for non-U.S. citizens with a temporary visa is 72% (last year the percentage was 75%). The number of non-U.S. citizens having employment in the U.S. is 426, up 6% from 401 last year.

Table 5G is a cross-tabulation of the 751 new doctoral recipients who have employment in the U.S. by citizenship and broad employment categories, using numbers from Table 5F. Of the 751 new doctoral recipients having jobs in the U.S., 43% are U.S. citizens. Of the 288 new doctoral recipients who took jobs in U.S. doctoral-granting departments, 38% are U.S. citizens (same as last year). Of the 314 who took other academic positions, 51% are U.S. citizens. Of the 149 who took nonacademic positions, 38% are U.S. citizens. Of the 325 U.S. citizens employed in the U.S., 33% have jobs in a doctoral-granting department, 49% are in other academic positions, and 18% are in nonacademic positions. For the 426 non-U.S. citizens employed in the U.S., the analogous percentages are 42%, 36%, and 22% respectively.

Sex, Race/Ethnicity, and Citizenship Status of 2004–05 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 433 (39%) U.S. citizens among the 1,116 new doctoral recipients in 2004–05. Among

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%
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%
2003-04	1041	441	42%
2004-05	1116	433	39%

*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.

U.S. citizens, 1 is American Indian or Alaska Native (male), 21 are Asian (14 males and 7 females), 14 are Black or African American (6 males and 8 females), 12 are Hispanic or Latino (8 males and 4 females), 3 are Native Hawaiian or Other Pacific Islander (1 male and 2 females), 380 are White (277 males and 103 females), and 3 are Other (males). Among non-U.S. citizens, there are 363 Asians, 21 Blacks or African Americans, 36 Hispanics or Latinos, 1 Native Hawaiian or Other Pacific Islander, 254 Whites, and 7 Other.

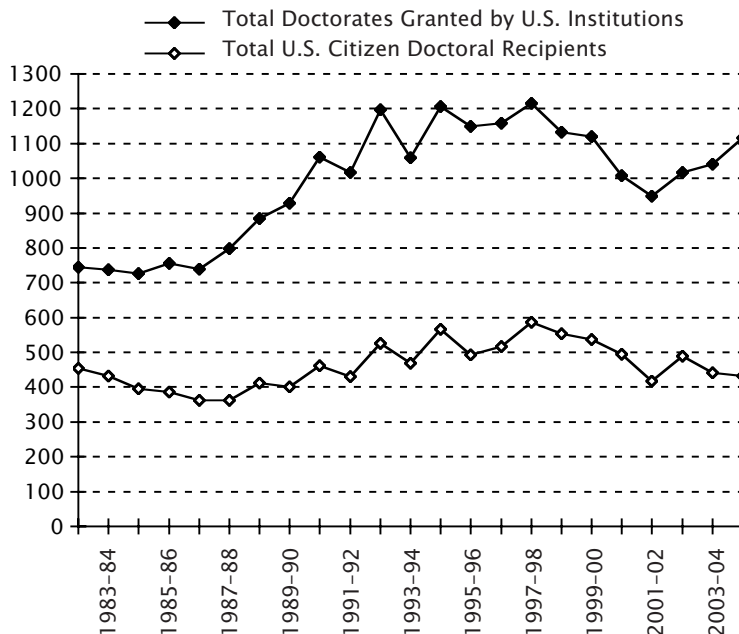
Table 7 (and Figure 3) gives the number of new U.S. doctoral recipients and the number of U.S. citizens back to 1980-81. The 433 U.S. citizen new doctoral recipients is down by 121 (22%) since 1998-99. The percentage of U.S. citizen new doctoral recipients has decreased for the second year to 39% from 42% in fall 2004, while in both years the total number of doctorates granted increased.

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

Year	Total U.S. Citizen Doctoral Recipients	Male	Female	% Female
1980-81	567	465	102	18%
1985-86	386	304	82	21%
1990-91	461	349	112	24%
1995-96	493	377	116	24%
1998-99*	554	367	187	34%
1999-00	537	379	158	29%
2000-01	494	343	151	31%
2001-02	418	291	127	30%
2002-03	489	332	157	32%
2003-04	441	297	144	33%
2004-05	433	313	120	28%

*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.

Figure 3: U.S. Citizen Doctoral Recipients



Females make up 28% of the 433 U.S. citizens receiving doctoral degrees in the mathematical sciences in 2004-05. This is the lowest percentage of females among U.S. citizen new doctoral recipients reported since 1997-98, when it was also 28%. Last year this percentage was 33%, and the percentage of women among U.S. citizens receiving doctoral degrees had been increasing the previous three years. Among the 683 non-U.S. citizen new doctoral recipients, 31% (209) are female, up from last year's 29%.

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

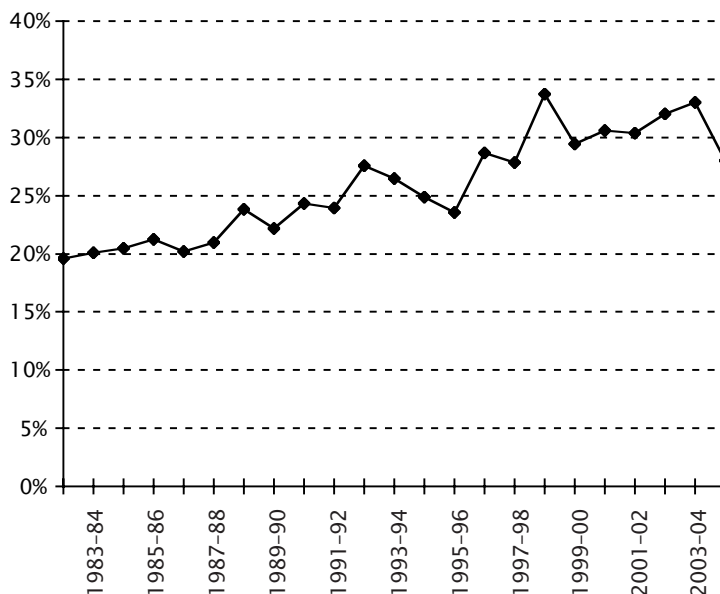


Table 9: Sex and Citizenship of 2004–05 New Doctoral Recipients by Granting Department

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.	93	15	45	11	67	24	37	27	44	34	27	9	313	120
Non-U.S.	99	36	75	15	91	21	60	29	115	92	33	17	473	210
TOTAL	192	51	120	26	158	45	97	56	159	126	60	26	786	330

Table 8 (and Figure 4) gives 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 female U.S. citizen new doctoral recipients is down 67 (36%) 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 groups of doctoral-granting departments. Among all 1,116 new doctoral recipients, 40% of the males and 36% 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 IV at 27% and highest in Group II at 45%. The number of U.S. citizen new doctoral recipients is lower than the number of non-U.S. citizen new doctoral recipients in all doctoral granting groups for 2004–05.

2004–05 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 91 new doctoral recipients with dissertations in statistics/biostatistics and probability in 2004–05 and have averaged 82 per year over the past ten years. Information about these 91 new doctoral recipients and the 285 new doctoral recipients in Group IV is found in this section of the report.

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 2004–05 results between the 58 statistics departments and the 29 biostatistics and biometrics departments in Group IV. This year 374 new doctorates had a dissertation in statistics/biostatistics (345) or probability (29), an 18% increase over last year’s number. Those with dissertations in statistics/biostatistics and probability accounted for 31% of new doctorates in 2004–05. Quite a bit of the variation in numbers from year to year in Table 10 is due to the changes made in the departments in Group IV over the ten years and to the relatively low response rate for this group. At the time of the Second Report last year, 78 of 87 (90%) of Group IV departments had responded, which is the largest percentage ever.

Group IV has 87 departments for 2004–05, 14 more than the next largest doctoral group. It

Table 10: 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
1995–96	80	54 (68%)	172	46 (27%)	55	3.9%	266	171	95	4.8%	24	6
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	5.4%	31	15
2002–03	86	74 (86%)	239	98 (41%)	45	2.1%	302	234	68	3.3%	20	19
2003–04	87	65 (75%)	243	97 (40%)	50	3.0%	318	241	77	4.0%	48	15
2004–05	87	63 (72%)	285	126 (44%)	64	5.0%	374	283*	91**	5.0%	26	19
Statistics	58	43 (74%)	192	79 (41%)	43	3.0%					13	14
Biostatistics	29	20 (62%)	93	47 (51%)	21	9.0%					13	5

* Of 283, there were 280 in statistics/biostatistics and 3 in probability. For complete details, see Table 4C.

** Of 91, there were 65 in statistics/biostatistics and 26 in probability. For complete details, see Table 4C.

contains 33% of all doctoral departments surveyed, and the 63 Group IV departments responding to the Annual Survey reported 285 new doctoral recipients, 26% of all new doctoral recipients in 2004–05. While this is the second lowest percentage of responding Group IV departments since 1995–96 when it was 68%, it's the largest number of new doctoral recipients reported since 1999–00 when it was 284. The number of new doctoral recipients in Group IV is up 42 from the number reported at this time last year, while the number of departments responding is down 2 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. The trends noted below have also been observed in past reports.

Table 9 shows that for the Group IV new doctoral recipients, 126 of 285 (44%) are female, while 204 of 831 (25%) are female in the other doctoral groups. Among U.S. citizens, females accounted for 34 of the 79 (43%) Group IV new doctoral recipients, while for the other groups 86 of 354 (24%) were female. Overall, 120 of 433 (28%) U.S. citizen new doctoral recipients were female.

In Group IV, 79 of 285 (28%) new doctoral recipients are U.S. citizens, while in other groups 354 of 831 (43%) are U.S. citizens.

Of the 206 new doctoral recipients from Group IV who found employment in the U.S., 64 (31%) took jobs in business or industry. From the other groups, 545 new doctoral recipients found employment in the U.S., of which 51 (9%) took jobs in business or industry.

The employment status for 244 Group IV new doctoral recipients is known, and 11 (4.5%) are unemployed. For the other groups, the employment status of 706 is known, and 58 (8.2%) are unemployed. Nineteen of 45 (42%) new doctoral recipients hired by Group IV departments were female, up from last year's 24%, the lowest percentage of female hires reported since 1999–2000. The other doctoral groups reported that 54 of 243 (22%) new doctoral recipients hired were female, down from last year's 27%.

Group IV had 283 new doctoral recipients with fields of thesis in statistics/biostatistics (280) and probability (3), and the other doctoral departments had 91 with fields of thesis in statistics/biostatistics (65) and probability (26). The distribution of these 65 degrees among the various groups can be found in Table 4C. The number of new doctoral recipients with theses in statistics/biostatistics and probability (374) is substantially larger than any other field, with algebra and number theory next with 161.

Faculty Salary Survey

The charts on the following pages display faculty salary data for Groups I (Pu), I (Pr), II, III, IV (Statistics), IV (Biostatistics), Va, M, and B: faculty salary distribution by rank, mean salaries by rank, information on quartiles by rank, and the number of returns for the group. Results reported here are summaries based on the departments who responded to this portion of the Annual Survey. This is the third year that salary information has been reported separately for statistics departments and biostatistics and biometrics departments in Group IV.

Table 11 provides the departmental response rates for the 2005 Faculty Salary Survey. Departments were asked to report for each rank the number of tenured and tenure-track faculty whose 2005–06 academic-year salaries fell within given salary intervals. Reporting salary data in this fashion eliminates some of the concerns about confidentiality but does not permit determination of actual quartiles. Although the actual quartiles cannot be determined from the data gathered,

Table 11: Faculty Salary Response Rates

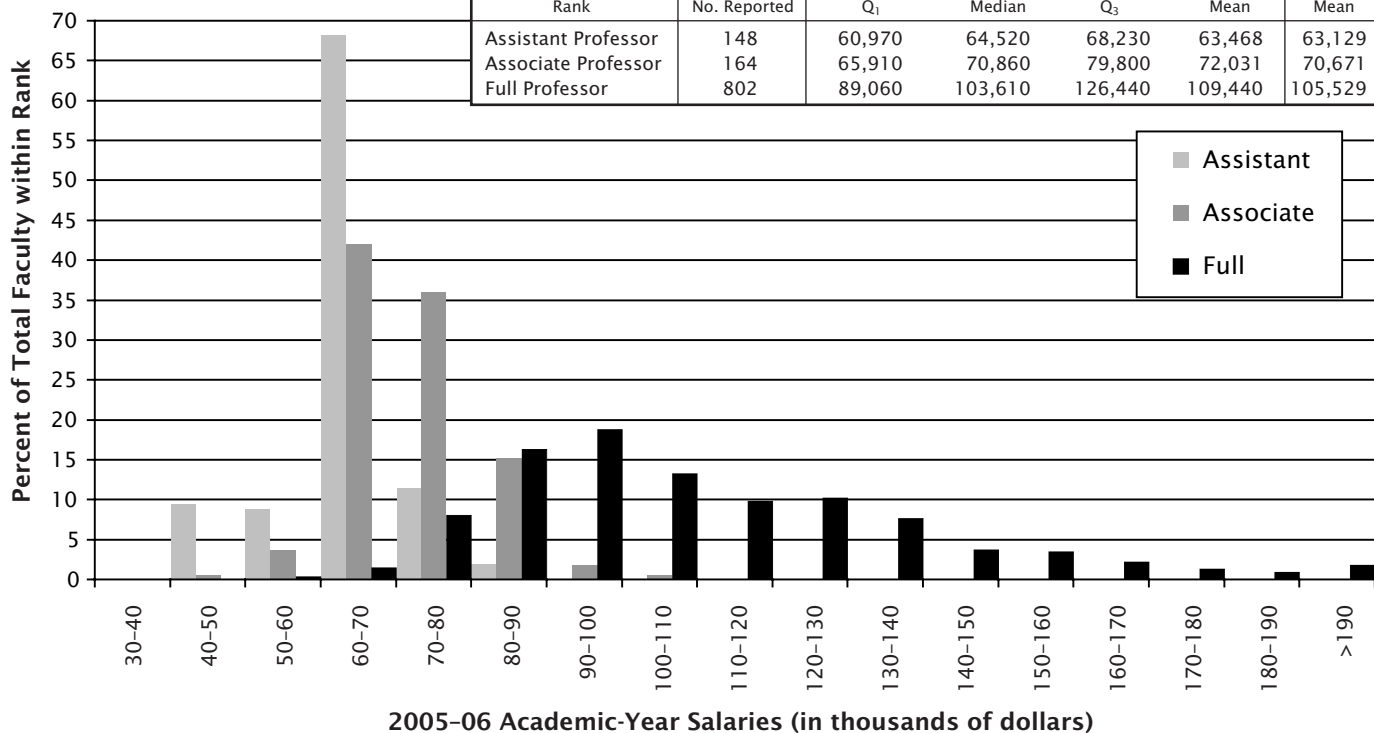
Department	Number	Percent
Group I (Public)	23 of 25	92
Group I (Private)	11 of 23	48
Group II	45 of 56	80
Group III	66 of 75	88
Group IV (Statistics)	42 of 55	76
Group IV (Biostatistics)	17 of 31	55
Group Va	11 of 21*	52
Group M	80 of 189	42
Group B	320 of 1010	32

* The population for Group Va is slightly less than for the Doctorates Granted Survey, because some departments grant degrees but do not formally "house" faculty and their salaries.

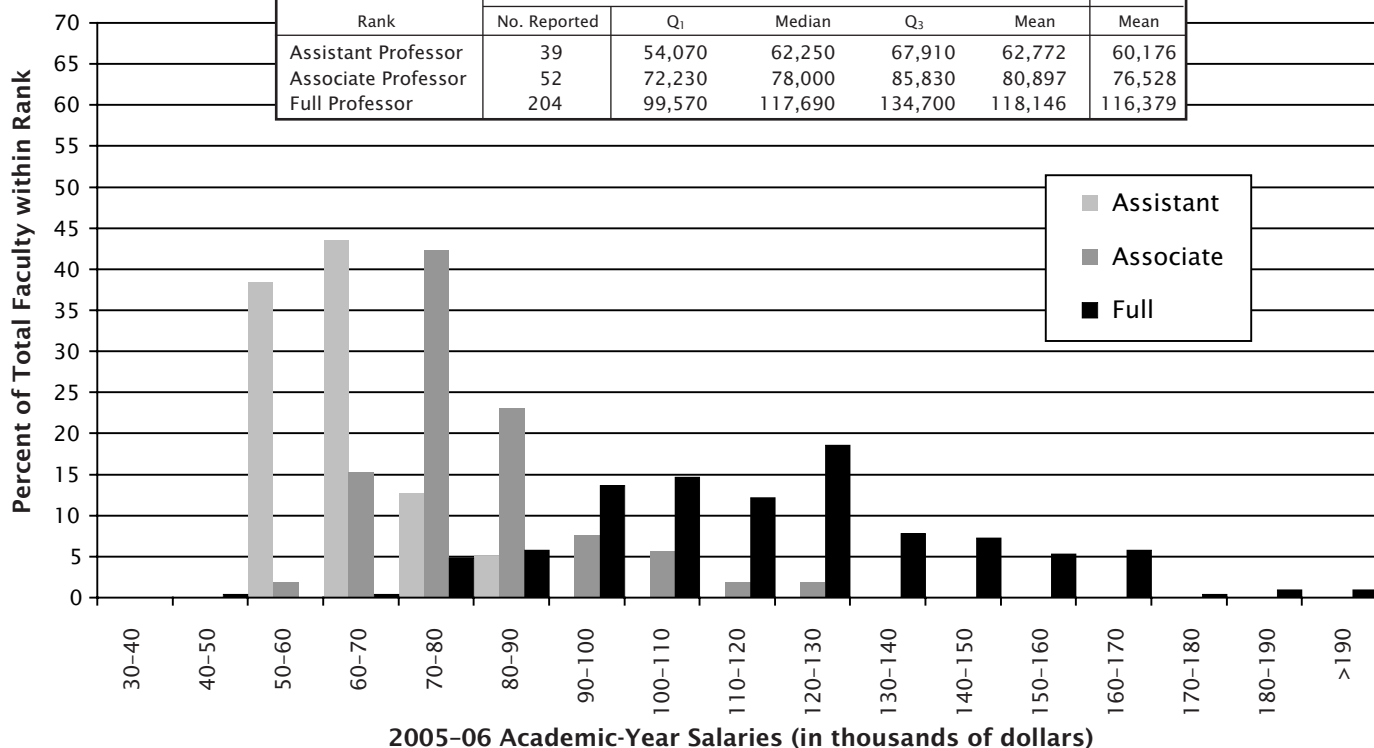
these quartiles have been estimated assuming that the density over each interval is uniform.

Since departments in Groups I, II, and III were changed in 1995–96 (see definitions of the groups on page 245), comparisons are possible only to the last eight years' data. In addition, prior to the 1998 survey Groups Va and Vb were reported together as Group V. When comparing current and prior year figures, one should keep in mind that differences in the set of responding departments

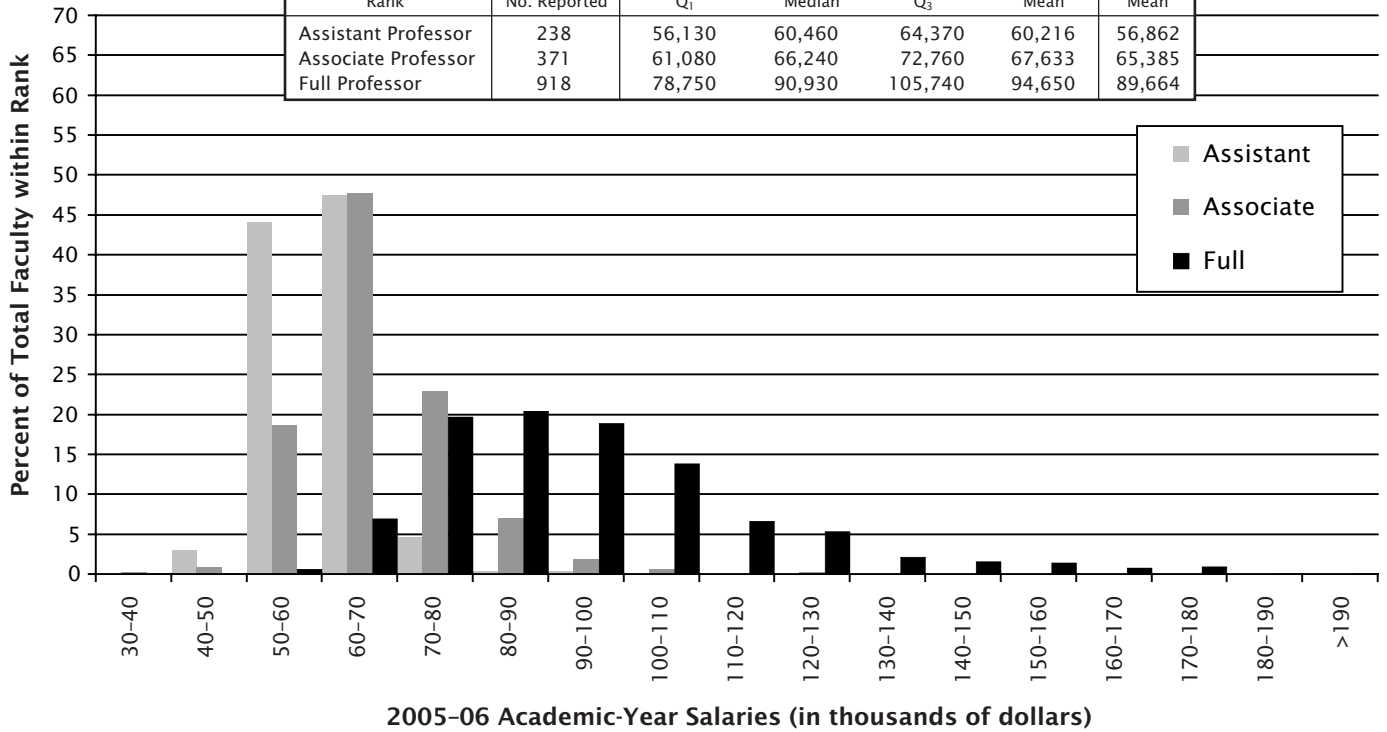
Group I (Public) Faculty Salaries						
Doctoral degree-granting departments of mathematics (25)						
23 responses (92%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	148	60,970	64,520	68,230	63,468	63,129
Associate Professor	164	65,910	70,860	79,800	72,031	70,671
Full Professor	802	89,060	103,610	126,440	109,440	105,529



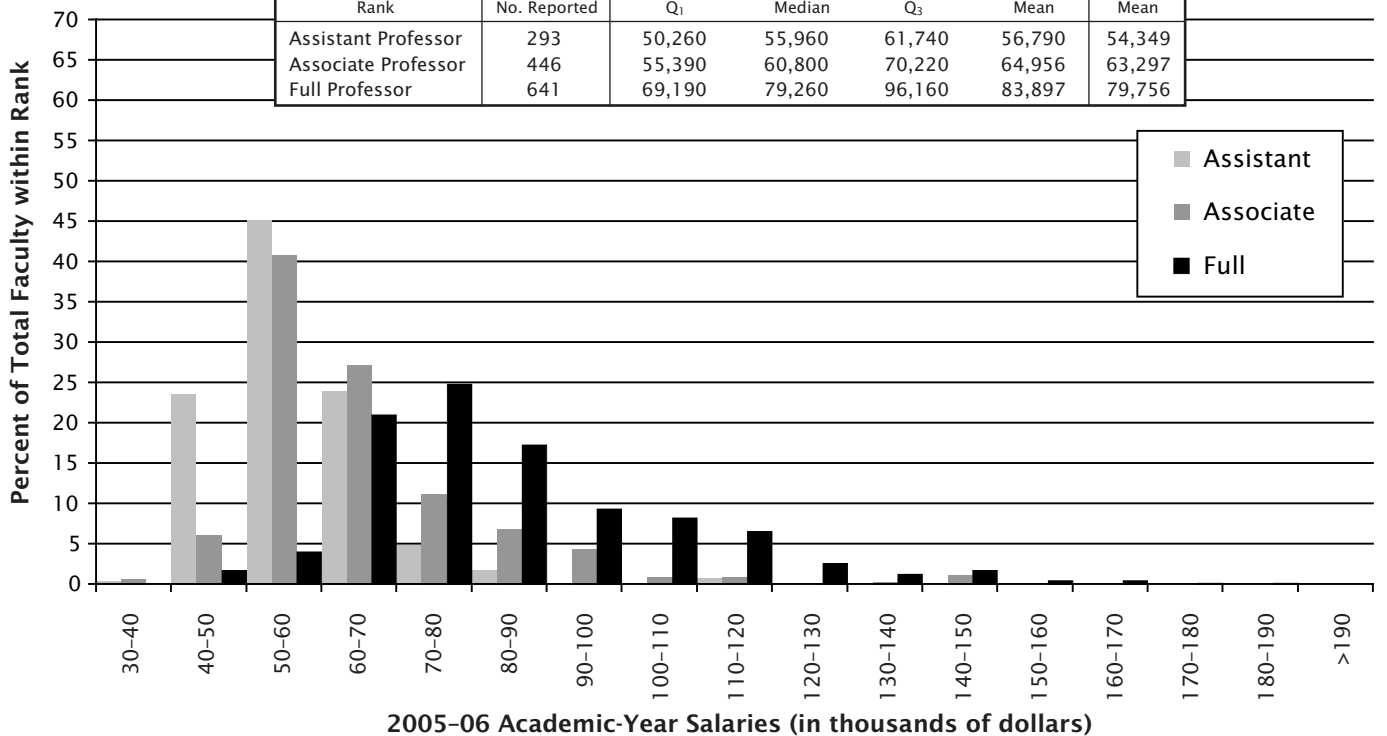
Group I (Private) Faculty Salaries						
Doctoral degree-granting departments of mathematics (23)						
11 responses (48%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	39	54,070	62,250	67,910	62,772	60,176
Associate Professor	52	72,230	78,000	85,830	80,897	76,528
Full Professor	204	99,570	117,690	134,700	118,146	116,379



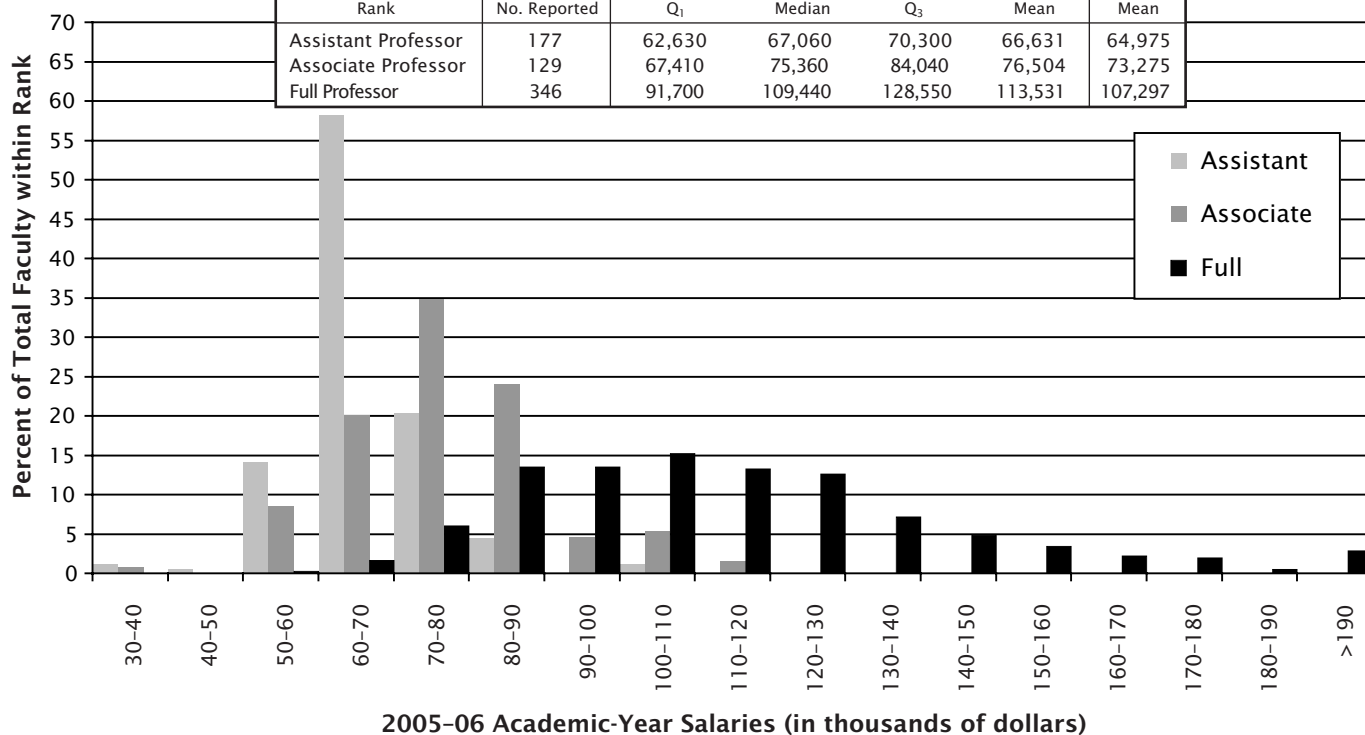
Group II Faculty Salaries						
Doctoral degree-granting departments of mathematics (56)						
45 responses (80%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	238	56,130	60,460	64,370	60,216	56,862
Associate Professor	371	61,080	66,240	72,760	67,633	65,385
Full Professor	918	78,750	90,930	105,740	94,650	89,664



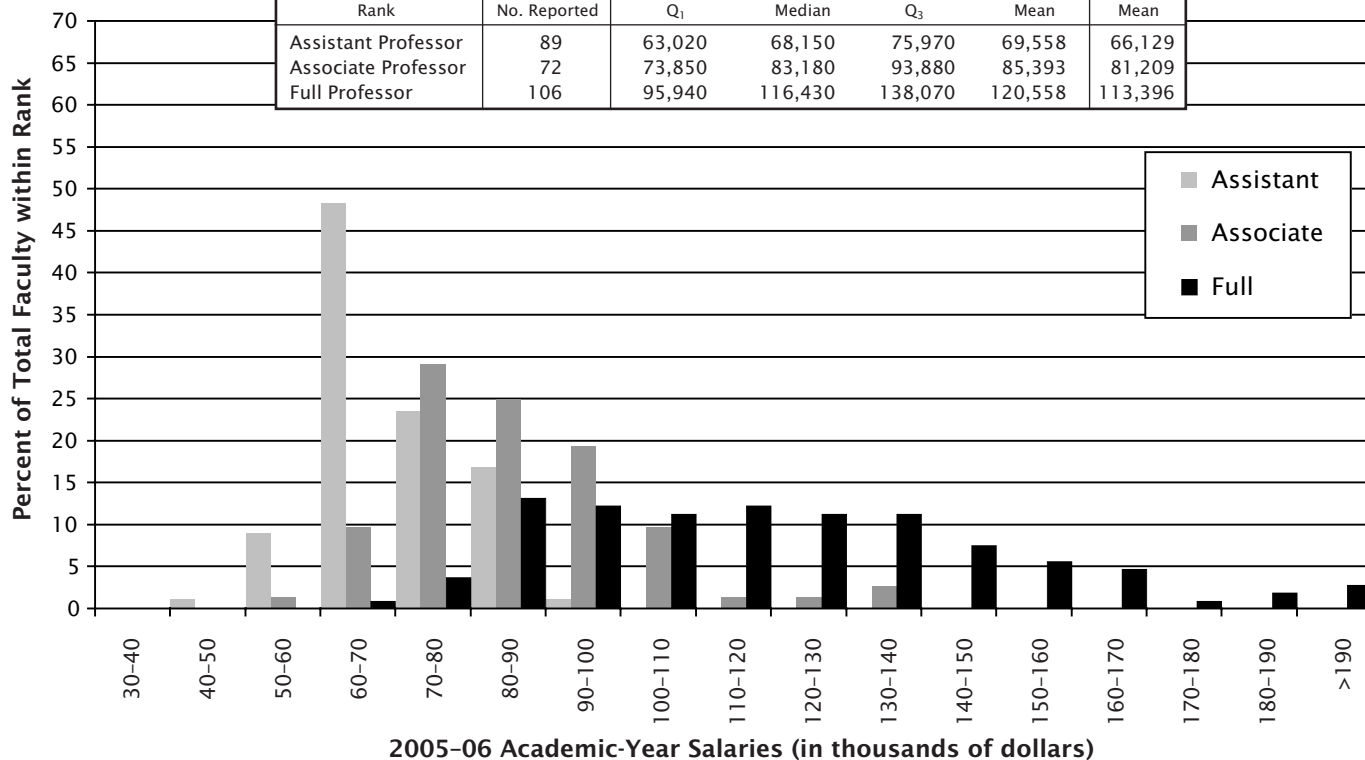
Group III Faculty Salaries						
Doctoral degree-granting departments of mathematics (75)						
66 responses (88%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	293	50,260	55,960	61,740	56,790	54,349
Associate Professor	446	55,390	60,800	70,220	64,956	63,297
Full Professor	641	69,190	79,260	96,160	83,897	79,756



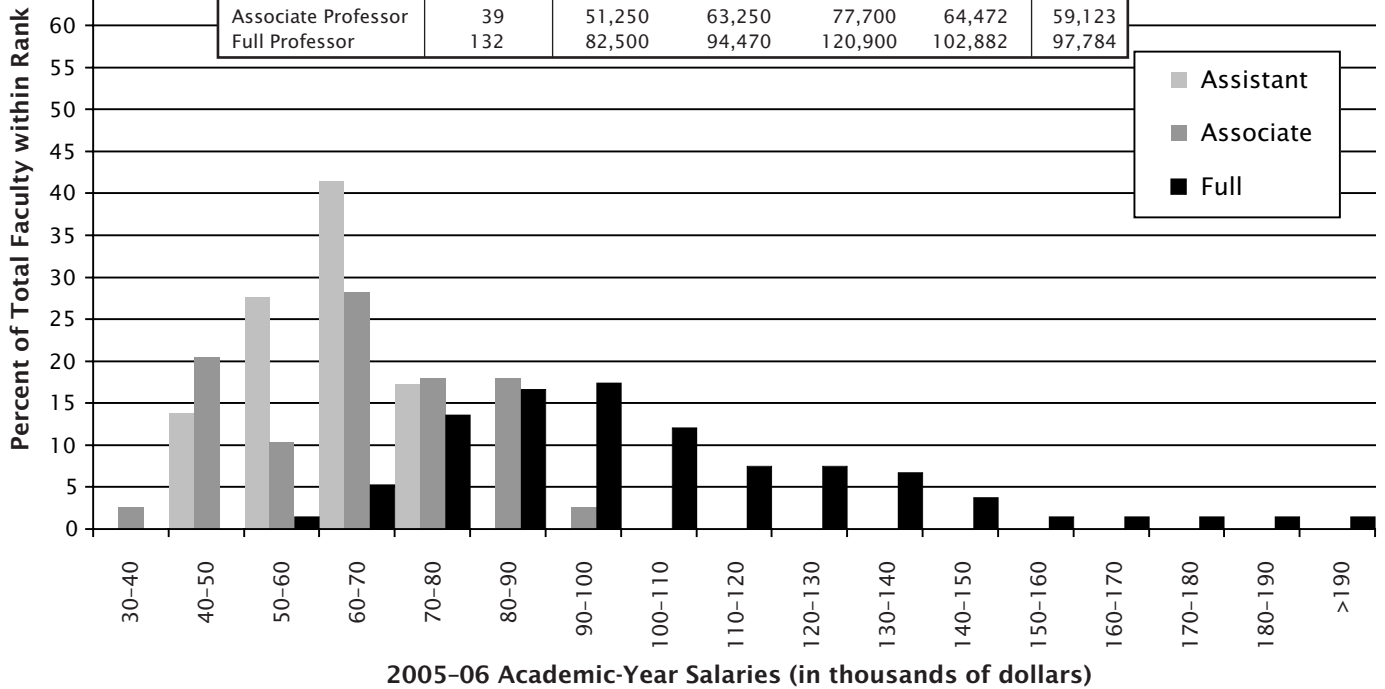
Group IV (Statistics) Faculty Salaries						
Doctoral degree-granting departments of statistics (55)						
42 responses (76%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	177	62,630	67,060	70,300	66,631	64,975
Associate Professor	129	67,410	75,360	84,040	76,504	73,275
Full Professor	346	91,700	109,440	128,550	113,531	107,297



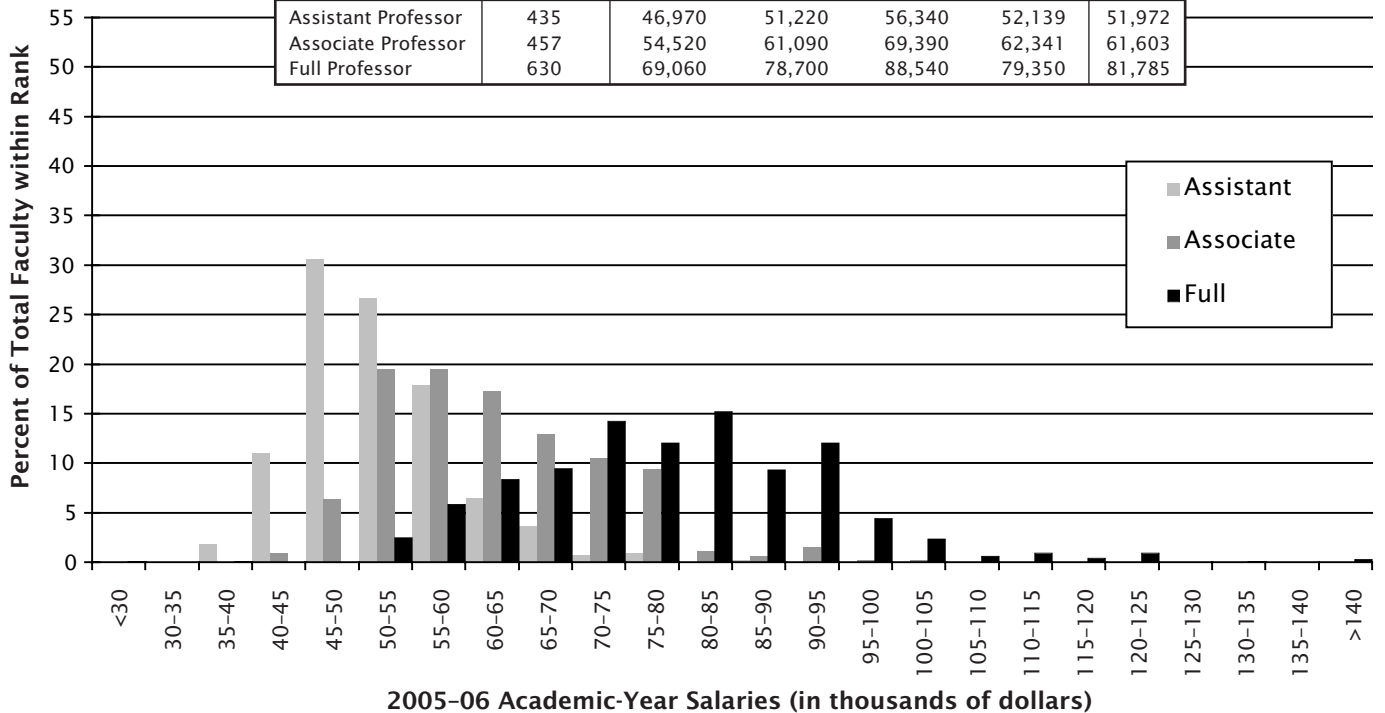
Group IV (Biostatistics) Faculty Salaries						
Doctoral degree-granting departments of biostatistics and biometrics (31)						
17 responses (55%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	89	63,020	68,150	75,970	69,558	66,129
Associate Professor	72	73,850	83,180	93,880	85,393	81,209
Full Professor	106	95,940	116,430	138,070	120,558	113,396



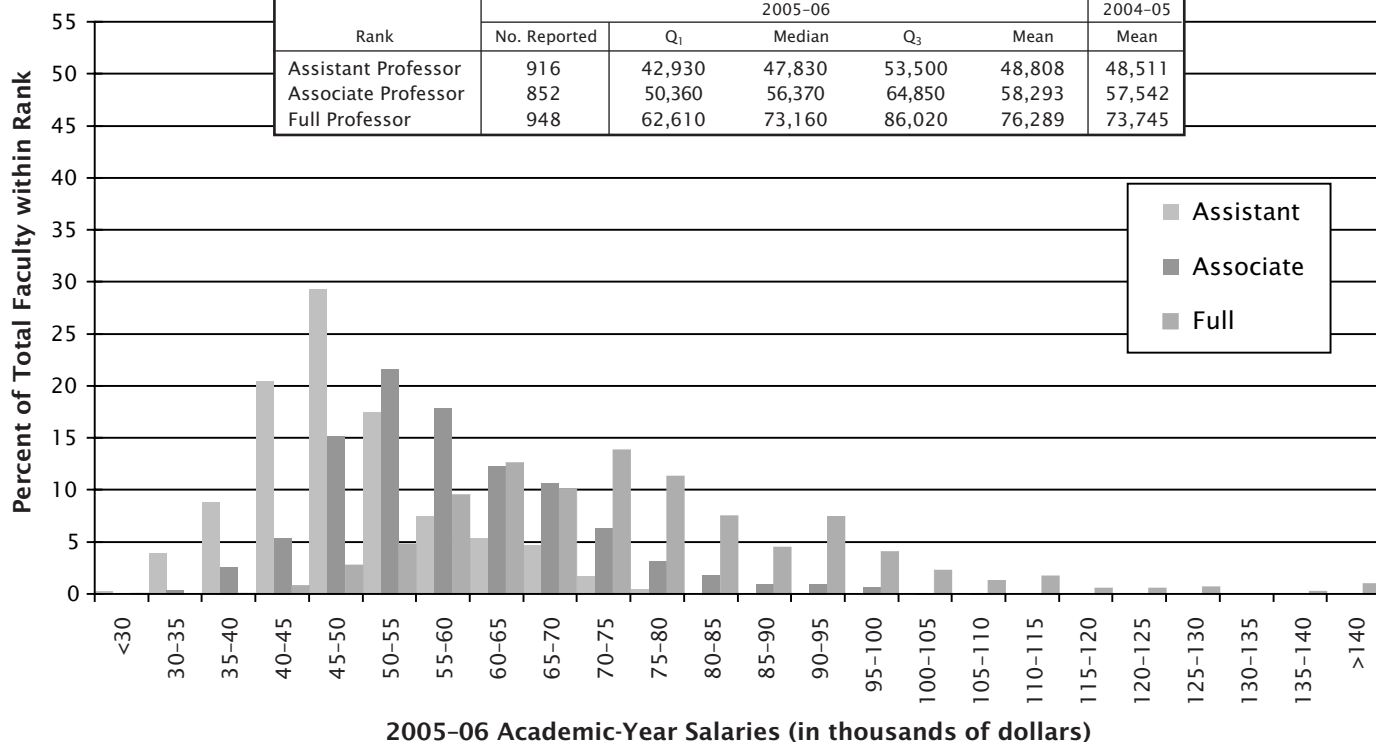
Group Va Faculty Salaries						
Doctoral degree-granting departments of applied mathematics (18)						
11 responses (61%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	29	52,330	61,390	66,750	59,827	54,418
Associate Professor	39	51,250	63,250	77,700	64,472	59,123
Full Professor	132	82,500	94,470	120,900	102,882	97,784



Group M Faculty Salaries						
Master's degree-granting departments of mathematics (189)						
80 responses (42%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	435	46,970	51,220	56,340	52,139	51,972
Associate Professor	457	54,520	61,090	69,390	62,341	61,603
Full Professor	630	69,060	78,700	88,540	79,350	81,785



Group B Faculty Salaries						
Bachelor's degree-granting departments of mathematics (1010)						
320 responses (32%)						
Rank	2005-06					2004-05
	No. Reported	Q ₁	Median	Q ₃	Mean	Mean
Assistant Professor	916	42,930	47,830	53,500	48,808	48,511
Associate Professor	852	50,360	56,370	64,850	58,293	57,542
Full Professor	948	62,610	73,160	86,020	76,289	73,745



may be a significant factor in the change in the reported mean salaries.

Previous Annual Survey Reports

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

Acknowledgments

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

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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 compose 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 Annual Survey 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 was 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 compose these groups are available on the AMS website at www.ams.org/employment/.

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

²These findings were published in An Assessment of Research-Doctorate Programs in the United States: Mathematical and Physical Sciences, edited by Lyle V. Jones, Gardner Lindzey, and Porter E. Coggeshall, National Academy Press, Washington, DC, 1982. The information on mathematics, statistics, and computer science was presented in digest form in the April 1983 issue of the Notices of the AMS, pages 257–67, and an analysis of the classifications was given in the June 1983 Notices of the AMS, pages 392–3.