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23rd ANNUAL AMS SURVEY 1979

First Report

The following pages contain a first report on the 1979 AMS Survey. Included in this issue are data on faculty members in four-year colleges and universities, a report on the 1979 survey of new doctorates, and a report on long-term changes in faculty salaries. (The list of the names and thesis titles of the members of the 1978–1979 Ph.D. class will be printed in the November issue of the Notices this year.)

Currently the Annual AMS Survey is conducted in two parts. Questionnaires were distributed in May to all departments in the mathematical sciences in colleges and universities in the United States and Canada, and, later to the recipients of doctoral degrees granted by these departments between July 1978 and June 1979, inclusive. This report is based on the information collected from these questionnaires. A second round of questionnaires was distributed in September, these are concerned with data on two-year colleges, fall enrollments, class size, teaching loads and faculty mobility. These data will be reported in the February or April 1980 issue of the Notices.

This Survey is the twenty-third in an annual series begun in 1957 by the Society's Committee on the Economic Status of Teachers. The present Survey is under the direction of the Committee on Employment and Educational Policy (CEEP), whose members are Lida K. Barrett (chairman), Alan J. Goldman, Arthur P. Mattuck, Donald C. Rung, Robert J. Thompson and William P. Ziemer. The questionnaires were devised by CEEP's Data Subcommittee consisting of Lida K. Barrett, Lincoln K. Durst, Wendell H. Fleming (chairman), Arthur P. Mattuck, Donald C. Rung and Donald J. Albers (consultant).

Faculty Salaries, Tenure, Women

As has been the practice for several years, questionnaires were sent to departments in the mathematical sciences, asking for information on salaries and tenure. Departments submitted a minimum, median, and maximum salary figure for each of four academic ranks, for staff members both with and without doctorates. Annual salaries of full-time faculty members for the academic year of 9–10 months were sought. The 1979 questionnaire requested information for both the years 1978–1979 and 1979–1980. The sample in this survey is thus the same for both years and is different from the sample used in the Twenty-Second Salary Survey in 1978. The information reported this year on the number of faculty members is based on returns from 846 departments in the mathematical sciences, 180 of which did not contain usable salary information. In the salary tables on the following pages the numbers in parentheses give the range of the middle fifty percent of salaries reported. The figures outside the parentheses represent the minimum and maximum salary listed by any reporting institution. In some categories relatively few departments reported and, because significant figures were not available, salaries are not listed.

For these reports, the departments are divided into groups according to the highest degree offered in the mathematical sciences. The doctorate-granting departments are in six groups as follows:

Group I and **Group II** include the leading departments of mathematics in the U. S. according to the findings of the American Council on Education in 1969* in which departments were ranked according to the quality of their graduate faculty. Group I is composed of the 27 departments ranked highest; Group II is made up of the other 38 leading departments listed in that report.

Group III contains all other U. S. departments of mathematics.

Group IV includes U. S. departments of statistics, biostatistics and biometrics.

Group V includes all other U. S. departments in the mathematical sciences.

Group VI consists of all departments in the mathematical sciences in Canadian universities.

Although Canadian doctorate-granting departments are grouped separately, those granting bachelor and master degrees are included with U. S. departments, as in previous years.

*The findings were published in *A Rating of Graduate Programs* by Kenneth D. Roose and Charles J. Andersen, American Council on Education, Washington, D. C., 1969, 115 pp. The information on mathematics was reprinted by the Society and can be found on pages 338-340 of the February 1971 issue of the Notices.

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TABLE 1: TOTAL FACULTY REPORTED FOR FOUR-YEAR COLLEGES AND UNIVERSITIES

1978—1979

	FACULTY		WOMEN		FACULTY		WOMEN	
	Total	With Tenure	Total	With Tenure	Total	With Tenure	Total	With Tenure
WITHOUT DOCTORATE								
Instructor/Lecturer	535	80	234	38	491	73	228	35
Assistant Professor	646	513	161	119	629	492	159	118
Associate Professor	521	499	68	64	521	496	63	62
Professor	159	155	12	12	163	159	12	12
	1861	1247	475	233	1804	1220	462	227
WITH DOCTORATE								
Instructor/Lecturer	280	18	41	3	269	19	37	3
Assistant Professor	2205	326	242	31	2188	284	264	27
Associate Professor	2984	2714	182	156	2973	2723	187	161
Professor	3524	3476	134	133	3731	3679	147	144
	8993	6534	599	323	9161	6705	635	335

NUMBER OF FACULTY MEMBERS REPORTED

Table 1 above provides a summary of the number of faculty members reported on the questionnaires. Readers should be aware of certain limitations on these figures as indicators of the size and composition of the North American mathematical sciences faculty: (1) The samples of responding departments in each category, being self-selected, cannot be assumed to be random samples. (2) Departments in each category differ greatly in size, so that extrapolation based on the sample size is not simple. (See Note 2 below.)

Note 1. Table 1 (Total Faculty Reported) shows a modest increase in the total number of faculty members between 1978–1979 and 1979–1980, among responding departments. The upward trend in tenure percentages (some 2% to 3% per year for faculty members who have doctoral degrees) observed for several years did not continue. This is seen from Table 2, which is based on the faculty counts shown on the left half of the following pages.

TABLE 2: PERCENT OF DOCTORATE FACULTY WITH TENURE

	Fall 1978	Fall 1979
Groups I, II, III	74.4%	75.2%
Groups IV, V	65.1%	66.1%
Group VI	82.7%	85.3%
Masters and Bachelors	71.8%	71.8%

Note 2. Response rates. The following table compares the percentage of departments which reported in each category and the fraction of faculty members reported by them. The latter were calculated using the estimates published on pages 108 and 109 of the February 1979 Notices.

TABLE 3: RESPONSE RATES

Group	Percent Response	Percent of Faculty Reported
U. S. Departments		
I	74	75
II	74	73
III	80	76
IV	66	77
V	33	49
M	52	53
B	41	41
Canadian Departments		
VI	49	58
M	28	32
B	34	34

Faculty Salaries

	SIZE OF FACULTY 1978–1979 FACULTY Total	FACULTY With Tenure	WOMEN Total	WOMEN With Tenure	1979–1980 FACULTY Total	FACULTY With Tenure	WOMEN Total	WOMEN With Tenure	SALARIES (in hundreds of dollars) 1978–1979 Minimum	Median	Maximum	1979–1980 Minimum	Median	Maximum
DOCTORATE GRANTING DEPARTMENTS. Group I (20 of 27 reporting)														
WITH DOCTORATE														
Instructor/Lecturer	71	2	5	0	68	2	7	0	---	---	---	---	---	---
Assistant Professor	149	3	14	1	153	2	15	0	133(143–160)	(150–170)	(173–189)200	145(151–178)	(160–182)	(179–197)223
Associate Professor	142	131	7	7	133	128	9	9	170(182–200)	(197–234)	(215–260)279	173(188–212)	(210–240)	(225–277)287
Professor	535	534	10	10	545	544	12	12	196(220–238)	(280–353)	(420–460)515	211(235–273)	(304–365)	(438–476)550
	897	670	36	18	899	676	43	21						
DOCTORATE GRANTING DEPARTMENTS. Group II (28 of 38 reporting)														
WITHOUT DOCTORATE														
Instructor/Lecturer	28	9	20	4	35	9	22	5	109(115–170)	(119–170)	(124–181)226	115(120–190)	(125–190)	(135–190)241
Assistant Professor	4	2	0	0	6	4	0	0	---	---	---	---	---	---
Associate Professor	1	1	0	0	1	1	0	0	---	---	---	---	---	---
Professor	1	1	0	0	1	1	0	0	---	---	---	---	---	---
	34	13	20	4	43	15	22	5						
WITH DOCTORATE														
Instructor/Lecturer	74	2	9	0	68	2	6	0	115(120–139)	(123–140)	(129–145)216	115(130–147)	(130–154)	(140–163)230
Assistant Professor	244	9	20	2	232	7	16	2	110(143–164)	(157–174)	(171–200)212	118(150–166)	(164–184)	(181–210)227
Associate Professor	333	321	14	13	336	325	16	14	149(164–203)	(199–218)	(235–259)301	164(187–209)	(215–231)	(234–274)321
Professor	446	444	13	13	476	474	13	13	200(218–244)	(279–305)	(376–440)537	203(225–262)	(283–325)	(398–464)570
	1097	776	56	28	1112	808	51	29						
DOCTORATE GRANTING DEPARTMENTS. Group III (72 of 90 reporting)														
WITHOUT DOCTORATE														
Instructor/Lecturer	50	11	25	9	37	8	21	6	93(97–133)	(100–143)	(100–162)206	95(100–145)	(100–145)	(105–174)206
Assistant Professor	60	59	18	18	55	54	17	17	122(146–165)	(153–168)	(155–182)210	122(155–178)	(156–187)	(166–189)226
Associate Professor	39	37	7	6	38	38	5	5	167(189–225)	(193–230)	(198–235)253	137(204–237)	(208–247)	(214–247)271
Professor	8	8	0	0	7	7	1	1	---	---	---	---	---	---
	157	115	50	33	137	107	44	29						
WITH DOCTORATE														
Instructor/Lecturer	39	1	4	1	39	1	5	1	96(110–144)	(110–144)	(110–144)152	96(106–145)	(110–147)	(114–149)167
Assistant Professor	415	60	46	4	416	57	45	3	66(140–159)	(154–171)	(169–191)229	130(150–170)	(165–183)	(179–201)242
Associate Professor	664	633	26	23	651	621	28	26	158(176–196)	(195–218)	(219–242)286	162(186–212)	(208–235)	(233–265)308
Professor	719	712	21	21	768	757	22	22	182(215–250)	(255–293)	(294–385)489	182(225–260)	(267–320)	(316–406)523
	1837	1406	97	49	1874	1436	100	52						

DOCTORATE GRANTING DEPARTMENTS. Group IV (45 of 68 reporting)

WITHOUT DOCTORATE														
Instructor/Lecturer	19	1	2	0	18	1	0	0						
Assistant Professor	6	2	1	1	5	2	1	1						
Associate Professor	4	3	1	1	4	3	1	1						
Professor	4	4	0	0	4	4	0	0						
	33	10	4	2	31	10	2	2						
WITH DOCTORATE														
Instructor/Lecturer	28	12	3	2	28	12	3	2	---	---	---	---	---	---
Assistant Professor	163	5	22	1	168	4	26	1	140(156-178)	(163-192)	(169-199)330	140(162-190)	(173-199)	(184-215)330
Associate Professor	129	111	7	5	129	110	8	5	169(190-240)	(206-247)	(215-260)370	178(204-251)	(219-265)	(224-289)390
Professor	260	260	8	8	269	269	9	8	187(247-299)	(296-373)	(348-438)700	200(259-327)	(315-375)	(388-475)700
	580	388	40	16	594	395	46	16						

DOCTORATE GRANTING DEPARTMENTS. Group V (39 of 118 reporting)

WITHOUT DOCTORATE														
Instructor/Lecturer	18	1	2	1	19	0	2	0						
Assistant Professor	2	1	0	0	4	2	1	1						
Associate Professor	2	1	1	0	0	0	0	0						
Professor	6	5	0	0	7	6	0	0						
	28	8	3	1	30	8	3	1						
WITH DOCTORATE														
Instructor/Lecturer	11	0	4	0	13	0	3	0	---	---	---	---	---	---
Assistant Professor	152	2	11	1	152	2	13	1	120(160-175)	(170-184)	(182-195)221	157(170-190)	(177-200)	(186-206)250
Associate Professor	124	90	6	4	114	89	4	3	179(185-200)	(205-237)	(213-254)280	193(200-233)	(220-250)	(230-264)300
Professor	268	259	4	4	288	282	5	5	205(243-300)	(278-350)	(362-425)466	220(250-306)	(299-374)	(380-453)560
	555	351	25	9	567	373	25	9						

DOCTORATE GRANTING DEPARTMENTS. Group VI (17 of 35 reporting)
(Canadian Departments)

WITHOUT DOCTORATE														
Instructor/Lecturer	11	0	2	0	17	0	4	0						
Assistant Professor	23	18	9	9	20	18	6	6						
Associate Professor	24	22	2	2	24	23	2	2						
Professor	10	10	0	0	10	10	0	0						
	68	50	13	11	71	51	12	8						
WITH DOCTORATE														
Instructor/Lecturer	4	0	1	0	5	0	3	0	---	---	---	---	---	---
Assistant Professor	91	32	5	2	87	28	3	1	130(136-190)	(152-215)	(174-236)242	142(152-210)	(167-224)	(186-239)256
Associate Professor	198	184	8	6	200	196	9	7	164(184-207)	(220-247)	(257-300)361	139(191-225)	(246-259)	(279-320)390
Professor	158	157	1	1	170	170	1	1	223(238-283)	(288-322)	(373-406)492	250(259-284)	(319-350)	(401-427)526
	451	373	15	9	462	394	16	9						

	SIZE OF FACULTY								SALARIES (in hundreds of dollars)					
	1978–1979				1979–1980				1978–1979			1979–1980		
	FACULTY		WOMEN		FACULTY		WOMEN							
	Total	With Tenure	Total	With Tenure	Total	With Tenure	Total	With Tenure	Minimum	Median	Maximum	Minimum	Median	Maximum
MASTER DEGREE GRANTING DEPARTMENTS					(188 of 371 reporting including 5 of 18 Canadian Departments)									
WITHOUT DOCTORATE														
Instructor/Lecturer	227	42	110	16	215	40	112	17	66(105-140)	(115-150)	(120-155)206	75(115-150)	(125-162)	(130-168)212
Assistant Professor	300	277	68	59	291	268	67	61	115(145-169)	(154-178)	(162-188)221	123(153-187)	(163-193)	(173-205)235
Associate Professor	221	219	27	27	224	222	26	26	139(172-210)	(182-216)	(185-226)277	144(182-224)	(187-230)	(196-243)300
Professor	60	60	4	4	62	62	4	4	183(238-277)	(238-282)	(238-282)351	194(219-298)	(219-305)	(219-312)357
	808	598	209	106	792	592	209	108						
WITH DOCTORATE														
Instructor/Lecturer	34	0	9	0	31	1	7	0	---	---	---	---	---	---
Assistant Professor	553	139	69	14	526	112	80	13	110(143-168)	(153-180)	(163-192)240	130(153-179)	(161-190)	(172-208)262
Associate Professor	889	816	59	53	895	816	58	53	125(175-198)	(191-216)	(200-238)318	134(186-210)	(203-233)	(213-253)341
Professor	706	699	41	40	759	751	47	45	132(214-254)	(229-273)	(253-300)405	141(224-271)	(241-298)	(268-325)432
	2182	1654	178	107	2211	1680	192	111						
BACHELOR DEGREE GRANTING DEPARTMENTS					(437 of 1064 reporting including 11 of 32 Canadian Departments)									
WITHOUT DOCTORATE														
Instructor/Lecturer	182	16	73	8	150	15	67	7	87(110-130)	(112-134)	(112-135)280	82(118-143)	(121-149)	(123-150)290
Assistant Professor	251	154	65	32	248	144	67	32	95(128-165)	(130-165)	(132-168)240	95(133-179)	(135-181)	(138-186)262
Associate Professor	230	216	30	28	230	209	29	28	100(147-186)	(150-187)	(154-195)288	110(155-197)	(159-202)	(160-211)322
Professor	70	67	8	8	72	69	7	7	148(186-247)	(186-255)	(186-256)392	125(200-265)	(200-265)	(200-273)420
	733	453	176	76	700	437	170	74						
WITH DOCTORATE														
Instructor/Lecturer	19	1	6	0	17	1	3	0	---	---	---	---	---	---
Assistant Professor	438	76	55	6	454	72	66	6	105(135-152)	(140-158)	(140-170)240	114(140-167)	(147-171)	(150-180)262
Associate Professor	505	428	55	45	515	438	55	44	134(159-191)	(160-196)	(160-205)309	130(165-203)	(170-210)	(171-222)332
Professor	432	411	36	36	456	432	38	38	113(190-233)	(192-245)	(195-250)353	123(196-249)	(200-261)	(205-278)380
	1394	916	152	87	1442	943	162	88						

Salary Survey for New Recipients of Doctorates

The figures for 1979 in this article were compiled from questionnaires sent to individuals who received a doctorate in the mathematical sciences during the 1978-1979 academic year from universities in the United States and Canada. This year no attempt was made to obtain information from individuals who were reported to have left the U. S. or Canada.

Questionnaires requesting information on salaries and professional experience were distributed to 787 recipients of degrees using addresses provided by the departments which granted the degrees. Of these, 41 were returned by the postal service as undeliverable and could not be forwarded. There were 418 individuals who returned forms between late June and early September. The tables below are based on the responses from 395 of these individuals (344 men and 51 women). Data from 23 responses were not used in the compilation of the tables below; forms with insufficient data, or from individuals who had indicated they had part-time employment, were not yet employed, or were not seeking employment were considered unusable.

Readers should be warned that the data in this report are obtained from a self-selected sample and inferences from them may not be representative of the population. More comprehensive information on the number, the sex-minority group status-citizenship, and the employment status of the recipients of new doctorates granted last year in the mathematical sciences in the U. S. and Canada may be found on the pages which follow.

KEY TO TABLES BELOW

Salaries are listed in hundreds of dollars. Years listed refer to the academic year ending in the listed year. M and F are Male and Female respectively. One year experience means that the persons had experience limited to one year or less in the same position or a position similar to the one reported; some persons receiving a doctorate had been employed in their present position for several years. (X + Y) means there are X men and Y women in the 1979 sample. Quartile figures are given only in cases where the number of responses is large enough to make them meaningful.

NINE-MONTH SALARIES

Year	Min.	Q_1	Median	Q_3	Max.
TEACHING OR TEACHING AND RESEARCH (206 + 35)					
1975	90	120	128	135	173
1976	85	124	133	145	245
1977	72	130	140	150	328
1978	92	135	145	159	211
1979	100	145	157	170	234
1975M	90	120	130	137	173
1975F	95	120	126	135	160
1976M	93	125	134	145	245
1976F	85	120	125	145	168
1977M	72	130	140	150	328
1977F	72	120	135	148	170
1978M	100	135	145	160	211
1978F	92	131	145	151	195
1979M	100	145	158	170	234
1979F	115	145	152	171	200
One year experience (169 + 27)					
1979M	100	145	155	169	220
1979F	115	145	150	168	200
RESEARCH (3 + 0)					
1975	100		-		110
1976	70		80		180
1977	80		86		160
1978	120		-		125
1979	110		132		160
1975M	100		-		110
1975F	-		-		-
1976M	70		80		180
1976F	-		-		-
1977M	80		-		160
1977F	-		86		-
1978M	120		-		125
1978F	-		-		-
1979M	110		132		160
1979F	-		-		-
One year experience (3 + 0)					
1979M	110		132		160
1979F	-		-		-

TWELVE-MONTH SALARIES

Year	Min.	Median	Max.
TEACHING OR TEACHING AND RESEARCH (36 + 4)			
1975	87	145	204
1976	100	155	270
1977	111	170	260
1978	101	185	290
1979	120	195	240
1975M	87	145	204
1975F	145	-	185
1976M	100	150	270
1976F	100	174	240
1977M	111	170	260
1977F	125	-	182
1978M	101	180	290
1978F	187	195	223
1979M	120	188	240
1979F	210	233	240
One year experience (29 + 3)			
1979M	135	180	230
1979F	210	230	235
RESEARCH (22 + 0)			
1975	90	119	180
1976	90	130	210
1977	100	156	250
1978	100	185	248
1979	100	174	271
1975M	90	119	180
1975F	-	-	-
1976M	90	121	210
1976F	-	195	-
1977M	100	139	210
1977F	190	222	250
1978M	100	187	248
1978F	-	180	-
1979M	100	174	271
1979F	-	-	-
One year experience (19 + 0)			
1979M	100	150	271
1979F	-	-	-

Year	Min.	Median	Max.
GOVERNMENT (15 + 3)			
1975	78	182	247
1976	115	194	270
1977	105	187	330
1978	170	220	320
1979	180	243	357
1975M	150	185	247
1975F	78	100	145
1976M	118	194	270
1976F	115	194	200
1977M	105	192	330
1977F	115	182	204
1978M	170	220	320
1978F	170	200	250
1979M	180	254	357
1979F	190	231	256
One year experience (8 + 1)			
1979M	180	197	292
1979F	-	190	-
BUSINESS AND INDUSTRY (62 + 9)			
1975	114	187	240
1976	120	205	400
1977	100	210	380
1978	145	240	387
1979	140	254	380
1975M	114	189	240
1975F	120	175	224
1976M	120	206	400
1976F	185	-	200
1977M	100	216	380
1977F	130	195	220
1978M	145	246	387
1978F	180	210	251
1979M	140	251	380
1979F	200	255	350
One year experience (45 + 6)			
1979M	140	244	330
1979F	220	240	285

Report on the 1979 Survey of New Doctorates

by Wendell H. Fleming

This report concerns new doctorates in the mathematical sciences. It includes the employment status of recipients of 1978–1979 doctorates in the mathematical sciences, and a breakdown according to their sex, minority group status and citizenship. In addition, trends in the number of doctoral degrees in the mathematical sciences, and in employment patterns for new recipients are reported.

The job market for new mathematical sciences doctorates was good in 1979. By early summer over 90% of new 1978–1979 doctorates had found positions for fall 1979. Judging from experience during recent years, it is likely that most of those reported as "not yet placed" subsequently found jobs during the summer. (A second report on the employment status of 1978–1979 doctorates is planned for the February 1980 issue of the Notices.)

The number of new mathematical sciences doctorates reported for 1978–1979 was down by about 7% from the previous year 1977–1978. The proportion of new doctorates from the ACE top-rated mathematics departments (Group I in the classification on p. 382) increased somewhat. There has recently been a steep decline in the number of new doctorates from departments in Group III. These are mathematics departments which were unrated in the 1969 ACE survey. There was also a drop last year in the number of new doctorates from statistics and statistics-related departments in Group IV, after a number of years during which the annual number of new doctorates from Group IV departments remained nearly constant.

Employment Status of New Doctorates, 1978–1979. Table 1 shows the employment status, by type of employer and field of degree, of the recipients of the 890 new doctoral degrees conferred by mathematical sciences departments in the U. S. and Canada between July 1, 1978 and June 30, 1979. These 890 individuals will be listed, with their thesis titles, in the November 1979 Notices.

In rows 1 through 5, the recipients are counted

TABLE 1

1979–1980 EMPLOYMENT STATUS OF NEW DOCTORATES IN THE MATHEMATICAL SCIENCES

Type of Employer	PURE MATHEMATICS											
	Algebra and Number Theory	Analysis and Functional Analysis	Geometry and Topology	Logic	Probability	Statistics	Computer Science	Operations Research	Applied Mathematics	Mathematics Education	Other	Total
Group I	9	14	17	4	3	1	1	0	6	0	4	59
Group II	9	17	8	5	2	2	0	0	3	0	0	46
Group III	15	24	6	4	2	10	1	0	12	0	1	75
Group IV	1	0	1	0	1	31	0	0	0	0	1	35
Group V	0	1	0	0	1	1	27	2	7	0	1	40
Masters	11	10	6	1	3	14	15	0	5	3	3	71
Bachelors	23	15	14	1	1	7	2	1	8	2	3	77
Two-year College or High School	3	7	1	0	0	0	1	0	4	4	0	20
Other Academic Depts.	1	3	0	0	1	16	10	5	9	1	4	50
Research Institutes	0	3	3	0	0	2	1	0	2	0	0	11
Government	0	1	1	0	1	10	5	1	6	0	4	29
Business and Industry	17	12	10	2	4	31	29	20	18	1	11	155
Canada, Academic	5	8	4	0	1	8	2	0	4	0	4	36
Canada, Nonacademic	2	2	2	1	0	2	1	0	0	0	1	11
Foreign, Academic	7	15	9	1	2	8	4	3	8	1	4	62
Foreign, Nonacademic	1	4	1	0	1	7	4	1	2	0	0	21
Not seeking employ.	3	1	2	1	0	0	0	0	0	0	3	10
Not yet employed	6	8	6	2	1	8	3	0	6	0	2	42
Unknown	3	5	2	1	3	5	4	4	8	3	2	40
Total	116	150	93	23	27	163	110	37	108	15	48	890

who accepted appointments in U. S. doctorate-granting mathematical sciences departments (Groups I-V as defined on page 382). In the next 2 rows, the figures represent those accepting appointments in U. S. mathematical sciences departments granting masters and bachelors degrees only. The information was obtained from the departments granting the degrees and from questionnaires subsequently completed by about 47% of the recipients themselves.

Among those 1978-1979 new doctorates employed in the U. S., slightly over 60% took positions in university or college mathematical sciences departments. About 28% took positions in government, business, and industry, while the remaining 12% are in two-year colleges, high schools, other academic departments, or research institutes.

Table 1 shows as "not yet employed" about 5% of the 1978-1979 new doctorates (this excludes those whose employment status is unknown, and those now in Canada or other foreign countries). The data in Table 1 were in many instances obtained in early summer of 1979, and do not reflect subsequent hiring during the summer; an update of Table 1 is planned for the February 1980 Notices. A similar update last year revealed that nearly all new 1977-1978 doctorates not yet employed by early summer subsequently found positions by Fall 1978. (See the Notices, October 1978, p. 346 and February 1979, p. 107.)

Sex, Race, and Citizenship of New Doctorates, 1978-1979. Table 2 below represents a breakdown according to sex, racial/ethnic group, and citizenship of these 890 new doctorates. The information summarized in Table 2 was obtained from department heads and in some cases from recipients themselves.

Table 2 shows that 13.7% of the new U. S. 1978-1979 doctorates are women. This is slightly more than the 13.3 percentage reported a year ago, and continues an increase from previous years. Table 2 shows thirty-nine new doctorates who are both U. S. citizens and members of a minority group. As in previous years this number represents only a small percentage of the total.

Analysis of the 1978-1979 employment forms for the new U. S. doctorates indicates that 10% of those employed by Group I, II, and III departments are women. (The percentage is very slightly higher if Group IV and V departments are included.) Among new doctorates employed by bachelors and masters degree-granting departments 23% are women, while among those employed by government, business, and industry 14% are women. Among the 42 individuals shown in Table 1 as not yet employed nine are women. Only seventeen individuals included in Table 1 were reported as having taken part-time employment.

Trends In the Number of New Doctorates. The downward trend observed since 1971 in numbers of

TABLE 2

SEX, RACE, AND CITIZENSHIP OF NEW DOCTORATES

July 1, 1978-June 30, 1979

U.S. DEGREES	MEN					WOMEN					TOTAL
	CITIZENSHIP					CITIZENSHIP					
RACIAL/ETHNIC GROUP	U.S.	Canada	Other	Not Known	Total Men	U.S.	Canada	Other	Not Known	Total Women	
Asian, Pacific Islander	12		75	2	89	5		11	1	17	106
Black	10		1		11						11
American Indian, Eskimo, Aleut	8				8	1				1	9
Mexican American, Chicano, Puerto Rican	3		3		6						6
None of those above	442	5	92	5	544	82		10		92	636
Unknown	28	4	8	5	45	5		1		6	51
Total Number	503	9	179	12	703	93		22	1	116	819

CANADIAN DEGREES	MEN					WOMEN					TOTAL
	CITIZENSHIP					CITIZENSHIP					
RACIAL/ETHNIC GROUP	U.S.	Canada	Other	Not Known	Total Men	U.S.	Canada	Other	Not Known	Total Women	
Asian, Pacific Islander		3	7		10		2			2	12
Black			2		2						2
American Indian, Eskimo, Aleut											
Mexican American, Chicano, Puerto Rican											
None of those above	4	24	8		36		2			2	38
Unknown		13	2	2	17		2			2	19
Total Number	4	40	19	2	65		6			6	71

new mathematical sciences doctorates continued during 1978-1979. Table 3 compares the numbers of doctorates granted during 1976-1977, 1977-1978, and 1978-1979 by those departments in Groups I, II, and III *which reported in each of these three years*. The number of such departments is indicated in parentheses.

TABLE 3: NUMBER OF NEW MATHEMATICAL SCIENCES DOCTORATES REPORTED

	1976-1977	1977-1978	1978-1979
Group I (24 depts.)	237	212	220
Group II (36 depts.)	151	157	132
Group III (77 depts.)	197	152	135
Total	585	521	487

Table 3 shows an overall 17% decrease among these departments during the two years 1976-1977 to 1978-1979, with a more drastic decrease of 31% in Group III. Over 45% of the new 1978-1979 doctorates shown in Table 3 come from Group I departments, compared to about 40% from Group I on the average for the previous eight years 1970-1978. Taken over the same eight year period, Groups II and III each produced about 30% of all doctorates from departments in these three Groups. However, the share of each group has fluctuated. Between 1974-1975 and 1975-1976, there was a sharp drop in the number of doctorates from Group II departments comparable to the more recent drop for Group III shown in Table 3.

The number of doctoral degrees granted by Group I-III departments in 1978-1979 is only slightly over half the number granted in 1970-1971. Some departments, particularly in Group III, are operating with quite small numbers of students in the Ph.D. program. At least three Ph.D. programs have been discontinued, and some other departments have reported that their Ph.D. program is being phased out.

A decline in numbers of new doctorates was also reported in the applications-related departments in Groups IV and V. Table 4 compares the numbers of doctorates granted during 1977-1978 and 1978-1979 in those Group IV, V, VI departments *which reported both years*.

TABLE 4: NUMBER OF NEW DOCTORATES

	1977-1978	1978-1979
Group IV (47 depts.)	148	128
Group V (39 depts.)	158	145
Group VI (25 depts.)	75	70
Total	381	343

The substantial decline in Table 4 for the statistics-related departments in Group IV is perhaps unexpected, considering the excellent employment prospects for statisticians. Possibly more statistics students are opting for a relatively well-paying job after the masters degree. Table 4 also indicates a drop for the computer science, operations research, and other applied departments in Group V, although returns from those departments are less complete than from the other groups.

Academic Salaries in Mathematics, 1960–1978

by Donald C. Rung

Since 1957 the Society has published surveys of salaries of faculty members in mathematics, so that the mathematical community may assess general salary levels. It has become apparent during the last several years that the salaries of mathematicians in academic positions have declined.

It is clear that, if present trends continue, salary levels in 1980, when discounted for inflation, will equal or be lower than salary levels of 1960–the gains of the sixties have been eroded by inflationary pressures and by the modest salary increases of the seventies. In fact, the situation in 1980 may well be worse than in 1960. During the sixties there was a general increase in the earning power of academic mathematicians, but we enter 1980 with little possibility of reversing the current downward trend in salary increases.

Tables I and II support these conclusions. Table I compares salaries of new Ph.D.'s in the years 1960, 1970, and 1978, and Table II compares salaries for the various professorial ranks in these same three years. Salaries are given in terms of *1960 dollars*, with the actual salaries given in parentheses for the year in question. The actual salary figures were taken from the AMS Salary Surveys for the years 1960, 1970, and 1978 and were converted to 1960 dollars using the implicit price deflator index prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce and often used by educational planners. It is a somewhat more conservative index than, say, the Consumer Price Index and has been constructed to reflect inflationary pressures on middle income wage earners. The index stood at 68.7 in 1960, 91.4 in 1970, and 152.0 in 1978. Using this index, the 1970 dollar is discounted by 0.75 and the 1978 dollar is discounted by 0.45 (to equal the 1960 dollar).

A further word of explanation on the tables: the figures used to compare salaries in Table I for new recipients of the doctorate were obtained from the Society's Annual Survey, reported in the October Notices for the years 1960, 1970 and 1978, respectively. A slightly different technique was used to arrive at the professorial salaries given in Table II. The Society has conducted its Annual Survey since 1957. The salaries for each of the years given in

TABLE I

SALARY FOR NEW RECIPIENTS OF THE DOCTORATE

in 1960 dollars (actual dollars in parentheses)

Position	1960	1970	1978
Teaching	$ 6,500	$ 8,300 (11,000)	$ 6,600 (14,500)
Research	6,600	8,300 (10,500)	6,600 (14,500)

TABLE II

FACULTY SALARIES

in 1960 dollars (actual dollars in parentheses)

	1960	1970	1978
Group I			
Assistant Professors	$ 7,300	$ 8,700 (11,600)	$ 7,200 (16,000)
Associate Professors	8,600	10,900 (14,500)	9,700 (21,100)
Full Professors	11,700	17,700 (22,500)	14,200 (31,700)
Group II			
Assistant Professors	7,500	9,100 (12,200)	7,400 (16,600)
Associate Professors	8,300	11,300 (15,100)	9,400 (20,900)
Full Professors	10,900	16,100 (21,500)	13,100 (29,200)
Group III			
Assistant Professors		9,100 (12,200)	7,300 (16,300)
Associate Professors		11,300 (15,100)	9,300 (20,700)
Full Professors		15,200 (20,300)	12,300 (27,400)

TABLE III

IMPLICIT PRICE DEFLATOR

prepared by
Bureau of Economic Analysis
U. S. Department of Commerce

Year	Index Value	Year	Index Value
1956	62.9	1968	82.6
1957	65.0	1969	86.7
1958	66.1	1970	91.4
1959	67.5	1971	96.0
1960	68.7	1972	100.0
1961	69.3	1973	105.8
1962	70.6	1974	116.4
1963	71.6	1975	127.2
1964	72.7	1976	133.8
1965	74.3	1977	141.3
1966	76.8	1978	152.0
1967	79.0		

Table II were computed using the salary for that year as reported in the succeeding year's Survey. Thus, the 1960 numbers are from the Survey as reported in the October 1961 Notices; the 1970 figures are from the October 1971 Notices; and the 1978 figures are from this issue of the Notices. To arrive at a representative salary for each rank, the median salaries for the 25th and 75th percentile were averaged. The classification of departments of universities and colleges in various groups for the purpose of reporting salaries has changed from 1961 to 1970. However, there are enough similarities in the groupings to retain the comparisons in the salaries of Group I and Group II departments. Comparisons of the salaries in Group III have been given only for 1970 and 1978. (See page 382 for definitions of the groups.) For the other categories of departments in the Annual AMS Survey, it is a simple matter to produce comparative figures similar to the ones presented here by using the implicit price deflator index given in Table III.

It seems clear that the 1980s will see salaries at levels comparable to the 1950s unless some efforts are made to arrest present trends. The vitality of mathematics depends on attracting those talented in mathematics with prospects of a decent livelihood in an academic career in mathematics. In 1956, a committee was formed "to investigate the present economic status of teachers" with the implicit assumption that the "present economic status" was none too good. It is obvious that we will enter the 1980s in the same economic doldrums and that efforts are required to assure a salary structure necessary for continued academic vitality.