

# 25th ANNUAL AMS SURVEY, 1981

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## *First Report*

- Faculty Salaries, Tenure, Women
  - Report on the 1981 Survey of New Doctorates
    - Salary Survey for New Recipients of Doctorates
      - Two Decades of Academic Salaries in Mathematics, 1960-1980

Reprinted from

*Notices of the American Mathematical Society*

Volume 28, Number 2, November 1981, pp. 608-618

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*First Report*

The following pages contain a first report on the 1981 AMS Survey. Included in this report are data on faculty members in four-year colleges and universities, a report on the 1981 survey of new doctorates, a report on salaries of new recipients of doctorates, a report on academic salaries over the last two decades, and a list of names and thesis titles for members of the 1980-1981 Ph.D. class.

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 1980 and June 1981, 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 fall enrollments, class size, teaching loads and faculty mobility. These data will be reported in the February or April 1982 issue of the *Notices*.

This Survey is the twenty-fifth 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), Donald C. Rung, Hans Schneider, Robert J. Thompson, Barnet M. Weinstock, and William P. Ziemer. The questionnaires were devised by CEEP's Data Subcommittee consisting of Lida K. Barrett, Lincoln K. Durst, Wendell H. Fleming, Arthur P. Mattuck, Donald C. Rung (chairman), and Susan J. Devlin (consultant).

## Faculty Salaries, Tenure, Women

The questionnaires sent to departments in the mathematical sciences asked 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 or 10 months were sought. The 1981 questionnaire requested information for both the years 1980-1981 and 1981-1982. The sample in this survey is thus the same for both years and is different from the sample used in the Twenty-Fourth AMS Survey in 1980. 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.

The information reported this year on the number of faculty members is based on returns from 781 departments in the mathematical sciences, 117 of which did not contain usable salary information.

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 described in the box.

**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<sup>1</sup>, 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 37 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 doctorate-granting 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 reports.

<sup>1</sup> 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 in the February 1971 issue of the *Notices*, pages 338-340.

**TABLE 1: Total Faculty Reported for Four-Year Colleges and Universities**

	1980-1981				1981-1982			
	FACULTY		WOMEN		FACULTY		WOMEN	
	Total	With Tenure	Total	With Tenure	Total	With Tenure	Total	With Tenure
<b>WITHOUT DOCTORATE</b>								
Instructor/Lecturer	660	76	321	37	688	72	339	35
Assistant Professor	514	374	131	85	512	360	126	82
Associate Professor	450	436	53	48	446	429	60	54
Professor	<u>143</u>	<u>140</u>	<u>13</u>	<u>13</u>	<u>143</u>	<u>138</u>	<u>10</u>	<u>10</u>
	1767	1026	518	183	1789	999	535	181
<b>WITH DOCTORATE</b>								
Instructor/Lecturer	218	8	39	2	200	9	36	3
Assistant Professor	2000	1243	267	27	2050	214	278	23
Associate Professor	2729	1472	196	169	2687	2397	208	177
Professor	<u>3607</u>	<u>3497</u>	<u>138</u>	<u>132</u>	<u>3795</u>	<u>3673</u>	<u>154</u>	<u>141</u>
	8554	6220	640	330	8732	6293	676	344

**TABLE 2: Percent of Doctorate Faculty with Tenure**

	Fall 1980	Fall 1981
Groups I, II, III	78.0%	77.2%
Groups IV, V	59.0%	59.4%
Group VI	84.5%	84.4%
Masters and Bachelors	71.5%	70.7%

**TABLE 3: Response Rates**

Group	U.S. Departments						
	I	II	III	IV	V	M	B
% Response	70	76	76	71	37	43	38
Group	Canadian Departments						
	VI	M	B				
% Response	43	35	16				

**Response Rates.** Response rates among the various classes of departments vary widely, thus making it difficult to draw firm conclusions about the sizes of the faculty groups studied. Because the questionnaires request data for two years in a row, however, it is

possible to estimate relative changes from one year to the next with somewhat more confidence. This year's response rates are given in Table 3. As in past years, the greatest rates of response are in Groups I, II, and III, which have a combined response rate of 74% .

**Faculty Salaries**

**SIZE OF FACULTY**  
 1980-1981      1981-1982  
 FACULTY      FACULTY      WOMEN      WOMEN  
 With      With      With      With  
 Total      Total      Total      Total  
 Tenure      Tenure      Tenure      Tenure

**SALARIES**  
 (in hundreds of dollars)

1980-1981

1981-1982

	1980-1981				1981-1982			
	Minimum	Median	Maximum	Maximum	Minimum	Median	Maximum	Maximum
<b>DOCTORATE GRANTING DEPARTMENTS. Group I (19 of 27 reporting)</b>								
<u>WITHOUT DOCTORATE</u>								
Instructor/Lecturer	1	0	1	0	1	0	1	0
Professor	2	2	1	1	1	1	1	1
	3	2	2	1	2	1	2	1
<u>WITH DOCTORATE</u>								
Instructor/Lecturer	41	2	5	0	43	2	5	0
Assistant Professor	128	3	13	2	135	3	10	2
Associate Professor	123	120	8	8	116	109	9	8
Professor	479	478	10	10	488	487	10	10
	771	603	36	20	782	601	34	20
<b>DOCTORATE GRANTING DEPARTMENTS. Group II (28 of 38 reporting)</b>								
<u>WITHOUT DOCTORATE</u>								
Instructor/Lecturer	42	7	23	2	42	6	25	2
Assistant Professor	8	6	1	1	8	6	1	1
Professor	0	0	0	0	1	1	0	0
	50	13	24	3	51	13	26	3
<u>WITH DOCTORATE</u>								
Instructor/Lecturer	48	2	7	0	41	2	4	0
Assistant Professor	159	5	14	2	156	4	15	3
Associate Professor	305	285	17	15	297	273	16	14
Professor	492	491	11	11	496	495	12	12
	1004	783	49	28	990	774	47	29
<b>DOCTORATE GRANTING DEPARTMENTS. Group III (66 of 87 reporting)</b>								
<u>WITHOUT DOCTORATE</u>								
Instructor/Lecturer	95	12	51	10	104	11	60	9
Assistant Professor	54	47	16	13	50	43	13	12
Associate Professor	46	45	5	4	43	42	7	6
Professor	15	15	0	0	17	16	0	0
	210	119	72	27	214	112	80	27
<u>WITH DOCTORATE</u>								
Instructor/Lecturer	40	1	9	1	40	1	7	1
Assistant Professor	353	46	40	6	358	39	39	3
Associate Professor	586	522	35	33	522	495	38	34
Professor	713	711	21	21	759	755	23	23
	1642	1280	105	61	1679	1290	107	61

DOCTORATE GRANTING DEPARTMENTS. Group IV  
(45 of 64 reporting)

	22	1	9	0	21	1	10	0	110(120-174)	(132-174)	(132-180)209	115(135-186)	(145-189)	(145-202)222
<u>WITHOUT DOCTORATE</u>														
Instructor/Lecturer	5	3	2	1	5	3	2	1	---	---	---	---	---	---
Assistant Professor	2	2	1	1	2	2	1	1	---	---	---	---	---	---
Associate Professor	3	3	0	0	3	3	0	0	---	---	---	---	---	---
Professor	32	9	12	2	31	9	13	2	---	---	---	---	---	---
<u>WITH DOCTORATE</u>														
Instructor/Lecturer	6	1	4	1	6	1	3	1	---	---	---	---	---	---
Assistant Professor	160	11	23	1	161	9	24	1	---	---	---	---	---	---
Associate Professor	131	110	11	7	118	99	11	9	---	---	---	---	---	---
Professor	273	273	10	10	295	294	11	10	---	---	---	---	---	---
	570	395	48	19	580	403	43	21	---	---	---	---	---	---

DOCTORATE GRANTING DEPARTMENTS. Group V  
(50 of 135 reporting)

	32	0	6	0	31	0	9	0	160(160-220)	(168-240)	(175-287)300	120(170-210)	(180-256)	(200-300)312
<u>WITHOUT DOCTORATE</u>														
Instructor/Lecturer	2	1	1	0	1	1	0	0	---	---	---	---	---	---
Assistant Professor	1	1	0	0	1	1	0	0	---	---	---	---	---	---
Associate Professor	6	6	0	0	6	6	0	0	---	---	---	---	---	---
Professor	41	8	7	0	39	8	9	0	---	---	---	---	---	---
<u>WITH DOCTORATE</u>														
Instructor/Lecturer	35	0	6	0	27	0	4	0	---	---	---	---	---	---
Assistant Professor	224	3	23	0	246	3	23	0	---	---	---	---	---	---
Associate Professor	183	136	8	5	190	148	8	7	---	---	---	---	---	---
Professor	337	262	6	4	350	274	7	5	---	---	---	---	---	---
	779	401	43	9	813	425	42	12	---	---	---	---	---	---

DOCTORATE GRANTING DEPARTMENTS. Group VI  
(15 of 35 reporting)

	5	0	0	0	5	0	0	0	137(165-179)	(172-197)	(183-239)259	143(185-218)	(190-234)	(206-268)291
<u>WITHOUT DOCTORATE</u>														
Instructor/Lecturer	2	0	0	0	2	1	0	0	---	---	---	---	---	---
Assistant Professor	7	7	2	2	7	7	2	2	---	---	---	---	---	---
Associate Professor	5	5	0	0	5	5	0	0	---	---	---	---	---	---
Professor	19	12	2	2	19	13	2	2	---	---	---	---	---	---
<u>WITH DOCTORATE</u>														
Instructor/Lecturer	1	0	0	0	1	0	0	0	---	---	---	---	---	---
Assistant Professor	66	16	6	1	61	10	5	1	---	---	---	---	---	---
Associate Professor	158	151	4	3	152	146	3	2	---	---	---	---	---	---
Professor	156	155	1	1	158	158	2	2	---	---	---	---	---	---
	381	322	11	5	372	314	10	5	---	---	---	---	---	---

**SIZE OF FACULTY**

1980-1981      1981-1982

	FACULTY		WOMEN		FACULTY		WOMEN	
	Total	With Tenure	Total	With Tenure	Total	With Tenure	Total	With Tenure
Without Doctorate	243	33	126	15	232	33	116	15
Instructor/Lecturer	192	167	48	36	191	157	46	33
Assistant Professor	175	174	18	17	171	170	21	20
Associate Professor	42	42	5	5	39	39	2	2
Professor	652	416	197	73	633	399	185	70
With Doctorate	33	1	6	0	28	2	8	1
Instructor/Lecturer	449	98	66	8	458	85	72	7
Assistant Professor	747	689	54	50	736	675	60	51
Associate Professor	705	696	42	42	762	752	52	47
Professor	1834	1484	168	100	1894	1514	192	106

**MASTER DEGREE GRANTING DEPARTMENTS.**

(151 of 355 reporting including 7 of 20 Canadian Departments)

WITHOUT DOCTORATE

	1980-1981		1981-1982		1980-1981		1981-1982	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Instructor/Lecturer	89(130-162)	(137-170)	(140-190)232	105(132-180)	(147-188)	(154-194)263	(187-223)	(198-233)303
Assistant Professor	122(167-205)	(173-208)	(182-216)283	122(177-219)	(218-279)	(236-281)482	(250-349)449	
Associate Professor	148(200-251)	(211-257)	(218-263)420	161(210-274)	(235-338)	(250-349)449	(250-349)449	
Professor	206(235-380)	(235-338)	(235-338)384	214(249-349)	(235-338)	(250-349)449	(250-349)449	

WITH DOCTORATE

	1980-1981		1981-1982		1980-1981		1981-1982	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Instructor/Lecturer	130(145-168)	(147-180)	(147-197)216	154(156-204)	(156-209)	(156-209)256	(191-224)	(202-240)355
Assistant Professor	139(165-197)	(176-207)	(184-219)308	150(181-210)	(236-271)	(251-300)489	(286-340)	(314-355)476
Associate Professor	148(197-228)	(220-248)	(232-277)425	161(212-247)	(265-318)	(286-340)	(286-340)	
Professor	159(240-287)	(265-318)	(287-345)436	168(254-306)	(286-340)	(314-355)476	(314-355)476	

**BACHELOR DEGREE GRANTING DEPARTMENTS.**

(407 of 1066 reporting including 5 of 31 Canadian Departments)

WITHOUT DOCTORATE

	1980-1981		1981-1982		1980-1981		1981-1982	
	Total	With Tenure	Total	With Tenure	Total	With Tenure	Total	With Tenure
Instructor/Lecturer	220	23	105	10	252	21	118	9
Assistant Professor	251	150	63	34	255	149	64	35
Associate Professor	219	207	27	24	222	207	29	25
Professor	70	67	7	7	71	67	7	7
	760	447	202	75	800	944	218	76

WITH DOCTORATE

	1980-1981		1981-1982		1980-1981		1981-1982	
	Total	With Tenure	Total	With Tenure	Total	With Tenure	Total	With Tenure
Instructor/Lecturer	14	1	2	0	14	1	5	0
Assistant Professor	462	61	82	7	475	61	90	6
Associate Professor	545	459	59	48	556	452	63	52
Professor	452	431	37	33	487	458	37	32
	1473	952	180	88	1532	972	195	90

# Report on the 1981 Survey of New Doctorates

by Donald C. Rung

This report concerns new doctorates in the mathematical sciences. It includes the employment status of recipients of 1980-1981 doctorates in the mathematical sciences, and a breakdown according to their sex, minority group, and citizenship. In addition, trends in the number of doctoral degrees in the mathematical sciences are reported for each group of departments as defined by the 1969 American Council on Education survey (described on the first page of this report of the 1981 Survey).

For the first time in several years the number of new doctorates reported (905) is greater than that of the previous year's figure (858). It should be noted that part of the increase is the result of efforts to increase the response rate in the area of operations research and management science. It is clear that the demand is now somewhat in excess of the supply. There were only 32 doctorates still seeking employment (the lowest number within recent memory) and, if past experience holds, most will find employment this year. Based upon

these reports over the last three years and the increased demand for doctorates reported in the Employment Register the author believes that an increase in the number of new doctorates to a level of 950 per year is necessary to meet the demand especially in the more applicable areas.

The percentage of new doctorates who are women increased sharply from 12.7% in 1979-1980 to 16.4% in 1980-1981. In absolute numbers there were 148 women who received doctorates in 1981 as compared to 108 in 1980. It is interesting to note that the percentage still seeking employment was the same (4%) for both men and women. This percentage is the lowest in recent years and also indicates that employment opportunities continue to be good. (A second report on the employment status of the 1980-1981 doctorates is planned for the February or April 1982 issue of the *Notices*.)

The number of new doctorates who have left the U.S. or Canada and have not been reported to have

TABLE 1: 1980-1981 Employment Status of New Doctorates in the Mathematical Sciences

Type of Employer	PURE MATHEMATICS						Statistics	Computer Science	Operations Research	Applied Mathematics	Mathematics Education	Other	Total
	Algebra and Number Theory	Analysis and Functional Analysis	Geometry and Topology	Logic	Probability								
Group I	14	17	16	6	1	1			4		2	61	
Group II	8	9	16	4	1	3	1		3		2	47	
Group III	7	6	8	1	1	4	4		4	1	6	42	
Group IV						28					1	31	
Group V				1		4	25	8	7		1	46	
Masters	12	22	10	3	2	12	3	2	6	1	5	78	
Bachelors	24	17	10	1		7	2		5	1	2	69	
Two-year College or High School		2							1	1	3	7	
Other Academic Depts.	2	2	1		2	33	7	14	11	1	8	81	
Research Institutes	1	3	5			5	1	2	7		1	25	
Government	1	3	1		1	8		2	5		2	23	
Business and Industry	6	13	7	2	6	43	26	17	28	1	6	155	
Canada, Academic	1	3				6	6		4	1	3	24	
Canada, Nonacademic	1	1	2			1	2	2	1			10	
Foreign, Academic	17	8	8		4	17	5	1	8	1	2	71	
Foreign, Nonacademic	4	9	4			9	2	11	8		2	49	
Not seeking employ.					1			2		1		4	
Not yet employed	5	2	3	1		11		2	5		3	32	
Unknown	3	6	5	1	1	16	8	1	7	1		49	
	106	123	96	20	22	208	92	64	114	10	49	904	

accepted academic positions nearly doubled from 29 in 1979-1980 to 49 in 1980-1981. The number of doctorates in this category exceeds both the number who have taken positions in Group II departments and the number who have taken positions in Group III departments.

It should be noted that the number of new doctorates reported as conferred by Group V departments which include computer science is considerably less than the actual number. It may be that the numbers reported to the AMS represent less than one-half of the total number. It is estimated that in 1979-1980 there were about 250 doctorates in the computer sciences while our figure in the October 1979 *Notices* was 110.

**Employment Status of New Doctorates, 1980-1981.** Table 1 shows the employment status, by type of employer and field of degree, of 905 recipients of doctoral degrees conferred by mathematical sciences departments in the U.S. and Canada between July 1, 1980 and June 30, 1981. These 905 individuals are listed, with their thesis titles, later in this report.

In rows 1 through 5, the recipients are counted who accepted appointments in U.S. doctorate-granting mathematical sciences departments (Groups I-V). In the next two rows, the figures represent those accepting appointments in U.S. mathematical sciences departments granting masters and bachelors degrees only. The information was obtained both from the departments granting the degrees and from questionnaires subsequently completed by about 42% of the recipients themselves.

Among those 1980-1981 new doctorates employed in the U.S. about 56% took positions in university or college mathematical sciences departments. About 27% took positions in government, business, and industry, while the remaining 17% are in two-year colleges, high schools, other academic departments, or research institutes. These figures are similar to those reported last year.

Table 1 shows as "not yet employed" about 4% of the 1980-1981 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 early in the summer of 1981 and do not reflect subsequent hiring during the summer; an update of Table 1 is planned for the February or April 1982 *Notices*. A similar update last year revealed that nearly all new 1979-1980 doctorates not yet employed by early summer subsequently found positions by Fall 1980. (See the *Notices*, October 1980, page 608, and February 1981, page 171.) Only eight individuals included in Table 1 were reported as having taken part-time employment.

**Sex, Race, and Citizenship of New Doctorates, 1980-1981.** Table 2 below represents a breakdown according to sex, racial/ethnic group, and citizenship of these 905 new doctorates. The information summarized in Table 2 was obtained from department heads and in some cases from recipients themselves.

Table 2 shows that 16.4% of the 1980-1981 doctorates are women. This is an increase from the 12.7 percentage

TABLE 2: Sex, Race, and Citizenship of New Doctorates

July 1, 1980-June 30, 1981

U.S. DEGREES	MEN					WOMEN					TOTAL
	CITIZENSHIP					CITIZENSHIP					
	U. S.	Canada	Other	Not Known	Total Men	U. S.	Canada	Other	Not Known	Total Women	
<b>RACIAL/ETHNIC GROUP</b>											
Asian, Pacific Islander	18		86	4	108	10		16		26	134
Black	6		9		15	2				2	17
American Indian, Eskimo, Aleut	1				1	2				2	3
Mexican American, Chicano, Puerto Rican	1		5		6	1		2		3	9
None of those above	412	6	128	1	547	81	1	16	1	99	646
Unknown	26		4	3	33	6				6	39
<b>Total Number</b>	<b>465</b>	<b>6</b>	<b>232</b>	<b>8</b>	<b>711</b>	<b>102</b>	<b>1</b>	<b>34</b>	<b>1</b>	<b>138</b>	<b>848</b>

CANADIAN DEGREES	MEN					WOMEN					TOTAL
	CITIZENSHIP					CITIZENSHIP					
	U. S.	Canada	Other	Not Known	Total Men	U. S.	Canada	Other	Not Known	Total Women	
<b>RACIAL/ETHNIC GROUP</b>											
Asian, Pacific Islander		2	7		9			1		1	10
Black			1		1						1
American Indian, Eskimo, Aleut											
Mexican American, Chicano, Puerto Rican			1		1						1
None of those above		20	10		30	1	5	1		7	37
Unknown		4	1		5		1		1	2	7
<b>Total Number</b>		<b>26</b>	<b>20</b>		<b>46</b>	<b>1</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>10</b>	<b>56</b>

reported a year ago. Table 2 shows forty-one new doctorates who are both U.S. citizens and members of a minority group, an increase of six from last year; as in previous years this represents only a small percentage of the total.

Analysis of the 1980-1981 employment forms for the new U.S. doctorates indicates that 12% of those employed by Groups I, II, and III departments are women, as compared to 8% last year. Among new doctorates employed by bachelors and masters degree-granting departments 29% are women, while among those employed by government, business, and industry 15% are women.

**Trends in the Number of New Doctorates.** Table 3 gives the number of doctorates granted during 1978-1979, 1979-1980, and 1980-1981 by those departments in Groups I-VI, *which reported in all three years*. The number of such departments is indicated in parentheses.

Table 3 shows that the percentage of doctorates from Groups I and II has decreased from 44% in 1980 to 39% in 1981. It is interesting to note that the total number of doctorates reported from Groups III and IV now exceeds those reported from Groups I and II.

**TABLE 3: Number of New Mathematical Sciences Doctorates Reported**

	78-79	79-80	80-81
Group I (24 depts.)	214	227	192
Group II (34 depts.)	130	118	108
Group III (74 depts.)	<u>132</u>	<u>135</u>	<u>160</u>
Subtotal	476	480	460
Group IV (39 depts.)	133	104	146
Group V (29 depts.)	116	116	115
Group VI (30 depts.)	<u>59</u>	<u>54</u>	<u>51</u>
Subtotal	308	274	312
<b>TOTAL</b>	784	754	772

## Salary Survey for New Recipients of Doctorates

The figures for 1981 in this article were compiled from questionnaires sent to individuals who received a doctorate in the mathematical sciences during the 1980-1981 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 780 recipients of degrees using addresses provided by the departments which granted the degrees. Of these, 7 were returned by the postal service as undeliverable and could not be forwarded. There were 381 individuals who returned forms between late June and early September. The tables below are based on the responses from 354 of these individuals (291 men and 63 women). Data from 27 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 in the previous article of this report on the 1981 Survey.

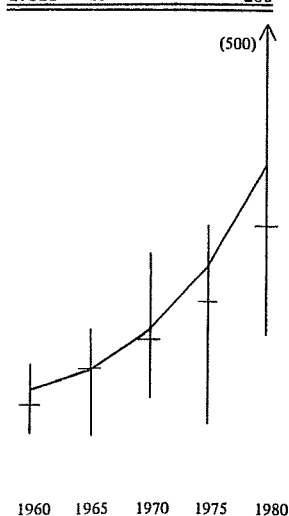
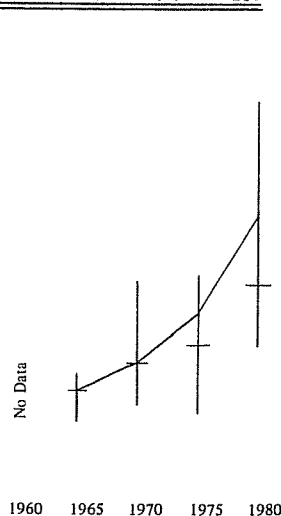
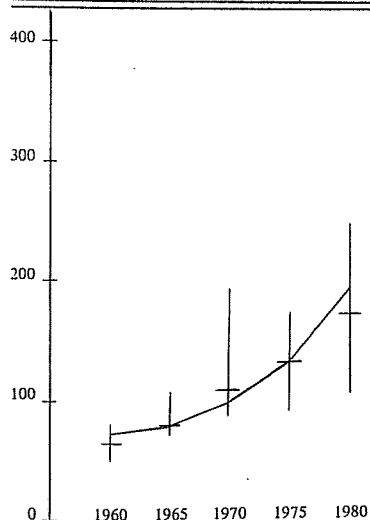
**Key to Tables.** *Salaries* are listed in hundreds of dollars. *Years* listed refer to the academic year ending in the listed year. *M* and *F* are Male and Female respectively. *One year experience* means that the persons had experience limited to one year or less in the same position or a position 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 1981 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 <sub>1</sub>	Median	Q <sub>3</sub>	Max.
TEACHING OR TEACHING AND RESEARCH (159 + 32)					
1977	72	130	140	150	328
1978	92	135	145	159	211
1979	100	145	157	170	234
1980	105	155	171	185	250
1981	130	175	190	210	320
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
1980M	120	155	171	185	250
1980F	105	151	164	198	210
1981M	130	175	190	210	320
1981F	146	177	195	216	300
One year experience (139 + 18)					
1981M	135	175	190	209	320
1981F	146	174	191	210	285

### Twelve-Month Salaries

Year	Min.	Median	Max.	Year	Min.	Median	Max.
TEACHING OR TEACHING AND RESEARCH (33 + 11)				GOVERNMENT (16 + 3)			
1977	111	170	260	1977	105	187	330
1978	101	185	290	1978	170	220	320
1979	120	195	240	1979	180	243	357
1980	143	195	350	1980	156	244	501
1981	156	203	400	1981	220	290	460
1977M	111	170	260	1977M	105	192	330
1977F	125	-	182	1977F	115	182	204
1978M	101	180	290	1978M	170	220	320
1978F	187	195	223	1978F	170	200	250
1979M	120	188	240	1979M	180	254	357
1979F	210	233	240	1979F	190	231	256
1980M	143	190	350	1980M	156	230	501
1980F	147	200	220	1980F	205	247	280
1981M	156	200	400	1981M	220	294	400
1981F	165	213	290	1981F	252	269	460
One year experience (27 + 10)				One year experience (10 + 2)			
1981M	156	200	290	1981M	220	250	305
1981F	165	199	280	1981F	252	-	269

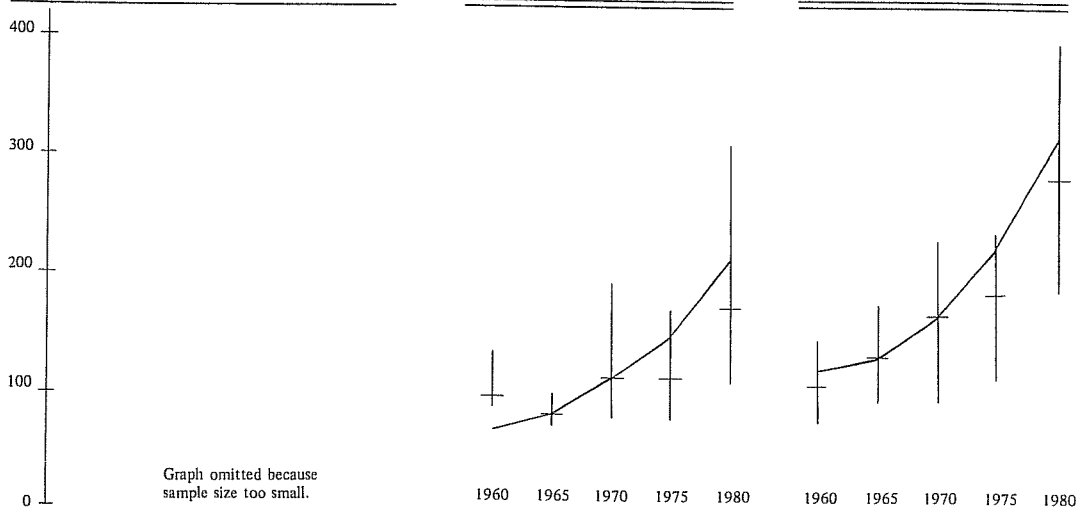


### Nine-Month Salaries

Year	Min.	Q <sub>1</sub>	Median	Q <sub>3</sub>	Max.
RESEARCH (2 + 1)					
1977	80	-	86	-	160
1978	120	-	-	-	125
1979	110	-	132	-	160
1980	125	-	137	-	180
1981	143	-	-	-	145
1977M	80	-	-	-	160
1977F	-	-	86	-	-
1978M	120	-	-	-	125
1978F	-	-	-	-	-
1979M	110	-	132	-	160
1979F	-	-	-	-	-
1980M	125	-	137	-	180
1980F	-	-	-	-	-
1981M	143	-	-	-	145
1981F	-	-	145	-	-
One year experience (2 + 1)					
1981M	143	-	-	-	145
1981F	-	-	145	-	-

### Twelve-Month Salaries

Year	Min.	Median	Max.	Year	Min.	Median	Max.
RESEARCH (17 + 3)				BUSINESS AND INDUSTRY (64 + 13)			
1977	100	156	250	1977	100	210	380
1978	100	185	248	1978	145	240	387
1979	100	174	271	1979	140	254	380
1980	120	180	321	1980	190	284	400
1981	140	200	280	1981	195	308	500
1977M	100	139	210	1977M	100	216	380
1977F	190	222	250	1977F	130	195	220
1978M	100	187	248	1978M	145	246	387
1978F	-	180	-	1978F	180	210	251
1979M	100	174	271	1979M	140	251	380
1979F	-	-	-	1979F	200	255	350
1980M	120	180	321	1980M	190	284	400
1980F	178	200	264	1980F	218	283	345
1981M	140	200	280	1981M	195	319	500
1981F	150	168	200	1981F	226	290	358
One year experience (16 + 3)				One year experience (44 + 13)			
1981M	140	200	280	1981M	195	304	390
1981F	150	168	200	1981F	226	290	358



**Graphs.** For each category and year, the median salary is denoted by a horizontal bar, a vertical bar extends to the extremes. The connected line segments relate the 1965 starting salary and its dollar value for each year. Thus, if a slope of the actual starting salaries is less than that of the corresponding segment, starting salaries did not keep up with inflation. Note

that starting salaries for all categories fall significantly behind the cost of living in 1975 as compared to 1970. In most cases, though, the *rate* of increase from 1970 to 1975 keeps up with inflation. Increases of starting salaries in the late seventies, however, do not make up for the loss in the early seventies.

## Two Decades of Academic Salaries in Mathematics, 1960-1980

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.

In an attempt to understand salary levels in mathematics over the last two decades the author made a study, published in the October 1979 *Notices*, which compared various salary levels in mathematics for the years 1960, 1970, and 1978. As mentioned in that article the 1980 salary levels would be of particular interest insofar as they would signal salary

levels to be expected during the 80s. The present article updates that survey by adding the 1980 salary figures to the two tables presented in the 1979 article. Unfortunately the prediction made in that article has become a reality. Except in two instances, salaries in current dollars are at or below 1978 levels, which themselves were considerably below comparable 1970 figures. Thus salaries continue to erode toward 1960 levels. Academic salaries in mathematics enter the 80s accompanied by a persistent decline in constant dollars from salary levels existing in 1970.

Tables I and II support these conclusions. Table I compares salaries of new Ph.D.'s in the years 1960,

1970, 1978, and 1980, and Table II compares salaries for the various professorial ranks in these same four years. Salaries are given in terms of 1960 dollars, with the salaries in current dollars given in parentheses for the year in question. These current dollar salary figures were taken from the AMS Salary Surveys for the years 1960, 1970, 1978, and 1980 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. The index stood at 68.7 in 1960, 91.4 in 1970, 150 in 1978, and 177.4 in 1980. Using this index, the 1970 dollar is multiplied by 0.75, the 1978 dollar multiplied by 0.46, and the 1980 dollar by .39 (to equal the 1960 dollar).

**TABLE I: Salary for New Recipients of the Doctorate**

in 1960 dollars (current dollars in parentheses)

Position	1960	1970	1978	1980
Teaching	\$ 6,500	\$ 8,300 (11,000)	\$ 6,700 (14,500)	\$ 6,700 (17,100)
Research	6,600	8,300 (10,500)	6,700 (14,500)	5,300 (13,700)

**TABLE II: Faculty Salaries**

in 1960 dollars (current dollars in parentheses)

	1960	1970	1978	1980
<b>Group I</b>				
Asst. Professors	\$ 7,300	\$ 8,700 (11,600)	\$ 7,400 (16,000)	\$ 7,700 (19,800)
Assoc. Professors	8,600	10,900 (14,500)	9,700 (21,100)	9,700 (25,000)
Full Professors	11,700	17,700 (22,500)	14,600 (31,700)	14,700 (37,800)
<b>Group II</b>				
Asst. Professors	7,500	9,100 (12,200)	7,600 (16,600)	7,500 (19,300)
Assoc. Professors	8,300	11,300 (15,100)	9,600 (20,900)	9,500 (24,500)
Full Professors	10,900	16,100 (21,500)	13,400 (29,200)	13,100 (33,700)
<b>Group III</b>				
Asst. Professors		9,100 (12,200)	7,500 (16,300)	7,300 (18,700)
Assoc. Professors		11,300 (15,100)	9,500 (20,700)	9,300 (23,900)
Full Professors		15,200 (20,300)	12,600 (27,400)	12,500 (32,000)

The index is given in Table III. It has been revised recently by the government and the most recent index is given in this article. It differs from the index given in the 1979 article for the years 1973-1978. Thus, in both Tables I and II the 1978 salaries have been adjusted to 1960 dollars using the more recent index resulting in slightly higher 1960 dollars than those reported in 1979.

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, 1978, and 1980, 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 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*; the 1978 figures are from the October 1979 *Notices*, and the 1980 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 percentiles were averaged. The classification of departments of universities and colleges in various groups for the purpose of reporting salaries has changed between 1961 and 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, 1978, and 1980. (See the first page of this report of the 1981 Survey 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.

This article presents no solution to the salary dilemma. We must continue to attract those talented in mathematics, but we face strong competition from related fields where salaries are considerably more attractive. Yet mathematics remains the single discipline able to offer the proper foundations for work in science and so its vitality is of primary importance.

**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	1969	86.7
1957	65.0	1970	91.4
1958	66.1	1971	96.0
1959	67.5	1972	100.0
1960	68.7	1973	105.7
1961	69.3	1974	114.9
1962	70.6	1975	125.6
1963	71.6	1976	132.1
1964	72.7	1977	139.8
1965	74.3	1978	150.0
1966	76.8	1979	162.8
1967	79.0	1980	177.4
1968	82.6		