

## TWO-YEAR COLLEGE MATHEMATICS PROGRAM FACULTY

This chapter describes the number, teaching load, education, professional activities, and age, sex, and ethnicity of the faculty in two-year college mathematics programs (that is, those who teach mathematics and computer science courses) in Fall 1990. Also included is information on mobility into, within, and out of two-year college mathematics program teaching positions, a list of the major problems of mathematics programs, and a section on administration of mathematics programs.

The data are compared with those from the 1966, 1970, 1975, 1980, and 1985 CBMS surveys. A "mathematics program" includes courses taught by the group of all mathematics and computer science faculty members. For information on the sampling procedure used in this survey, see Appendix II.

### Highlights

- About 7200 people teach full-time in two-year college mathematics programs in the United States. This is an increase of 15% from 1985 to 1990, compared over the same period to a 35% increase in student enrollment. Over the same period, the number of part-time faculty in two-year college mathematics programs increased by a whopping 84% to about 13,700.
- Part-time faculty teach 42% of the total number of sections and 51% of the sections of remedial mathematics.
- Seventy-three percent of part-time instructors either have full-time employment elsewhere or are graduate students.
- The average teaching load of full-time mathematics program faculty is 14.7 contact hours a week, down from 16.1 hours in 1985.
- Forty-four percent of the full-time faculty teach extra hours for extra pay, averaging 4.7 additional hours for these faculty members.
- The percentage of full-time two-year college mathematics program faculty with a doctorate has risen to 16.5%, although fewer than 2% of new full-time hires in 1989-1990 had doctorates. (In the 1985 CBMS survey, about 14% of new hires had doctorates.) The percentage of full-time faculty members whose highest degree is a bachelor's degree is down to 4% (compared with 27% of the part-time faculty).

- Women comprise about 34% of the full-time faculty in mathematics programs, up from 21% in 1975. (In the 1980s, women were awarded about 35% of the master's degrees in the mathematical sciences.) Women make up about half of all full-time mathematics program faculty members under the age of forty.
- Ethnic minorities comprise about 16% of the full-time mathematics program faculty members (up from 7% in 1975) and about 26% of the full-time mathematics program faculty members under the age of forty.
- The major route into full-time teaching in a two-year college mathematics program is having taught previously in that program, accounting for 47% of new hires.
- Death or retirement account for only a third of those who leave two-year college mathematics program teaching.
- The average age of those teaching full-time in two-year college mathematics programs has increased to 45.4 years.
- The percentage of full-time mathematics program faculty members who participate in selected professional activities, as estimated by department heads, is generally down from 1985.
- Remediation is the only problem classified as major by a majority of department heads (65%), followed by salary levels/ patterns (47%), the need to use temporary faculty for instruction (42%), and student motivation (38%).

## The Number and Teaching Load of Full-time and Part-time Mathematics Program Faculty

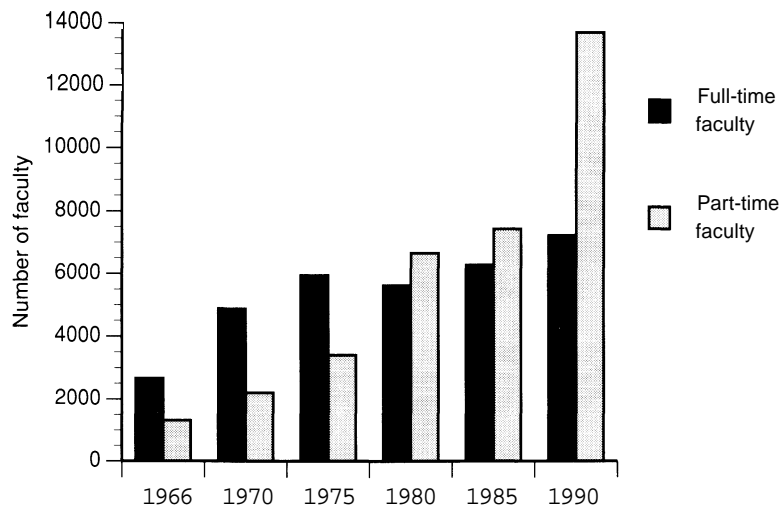
### Trends in the number of full-time and part-time mathematics program faculty members

Table TYR.17 shows that part-time instructors make up 65% of the two-year college mathematics program faculty. The number of part-time instructors increased by 84% from 1985 to 1990 while the number of full-time instructors increased by only 15%. Not surprisingly, 42% of mathematics program heads classify "the need to use temporary faculty for instruction" as a major problem (see Table TYR.41).

Supplementing the part-time faculty, about 44% of the full-time two-year college mathematics program faculty teach extra hours for extra pay. These instructors are included only with the full-time faculty in Table TYR.17 and all other tables and figures.

**TABLE TYR.17 Number of full-time and part-time faculty in mathematics programs at two-year colleges: Fall 1966, 1970, 1975, 1980, 1985, 1990.**

	1966	1970	1975	1980	1985	1990
Full-time faculty	2677	4879	5944	5623	6277	7222
Part-time faculty	1318	2213	3411	6661	7433	13680



**FIGURE TYR.17.1** Number of full-time and part-time faculty in mathematics programs at two-year colleges: Fall 1966, 1970, 1975, 1980, 1985, 1990.

### Ratio of the number of part-time faculty to full-time faculty by geographic region

Table TYR.18 gives the ratio of part-time to full-time mathematics program faculty. This ratio is lowest in the southeast and highest in the midwest.

**TABLE TYR.18** The ratio of number of part-time faculty to full-time faculty in mathematics programs in two-year colleges by geographic region: Fall 1990.

Ratio	West	Midwest	New England/ Mid-Atlantic	Southeast
Part-time/full-time	1.85	2.14	2.02	1.38

### Percentage of sections taught by part-time faculty

Part-time faculty members in two-year college mathematics programs teach 42% of the total number of sections. In 1985, the percentage was 28%. Table TYR.19 shows that the percentage varies with the type of course. About half of the total number of sections are taught either by part-time instructors or full-time instructors teaching extra hours for extra pay.

A smaller percentage of the sections of linear algebra (13%) are taught by part-time faculty than any other mathematics course; a larger percentage of the sections of prealgebra (70%) are taught by part-time faculty than any other mathematics course. A smaller percentage of the sections of database management (10%) are taught by part-time faculty than any other computer science course; a larger percentage of the sections of data processing (72%) are taught by part-time faculty than any other computer science course.

**TABLE TYR.19 Percent of sections taught by part-time faculty in two-year college mathematics programs: Fall 1990.**

Type of course	Percent of sections taught by part-time faculty
Remedial (Courses 1-6)	51%
Precalculus (Courses 7-11)	30%
Mainstream calculus (Courses 12-14)	17%
Non-main calculus (Courses 15-16)	33%
Advanced math (Courses 17-19)	24%
Service courses (Courses 20-23)	38%
Statistics (Courses 24-25)	33%
Technical math (Courses 26-27)	36%
Computer science (Courses 29-36)	47%

### Teaching load of full-time faculty

The average required teaching load of a full-time two-year college mathematics program faculty member is 14.7 contact hours a week, down from 16.1 hours in 1985. In addition, about 44% teach extra hours for extra pay, averaging 4.7 additional hours for these faculty members.

Table TYR.20 gives the percentage of two-year college mathematics programs that have various teaching loads.

Teaching loads for full-time faculty are highest in states in the west and lowest in the New England/Mid-Atlantic states. Compare Table TYR.21 with Table TYR.25, which shows the highest degree of full-time faculty by geographic region.

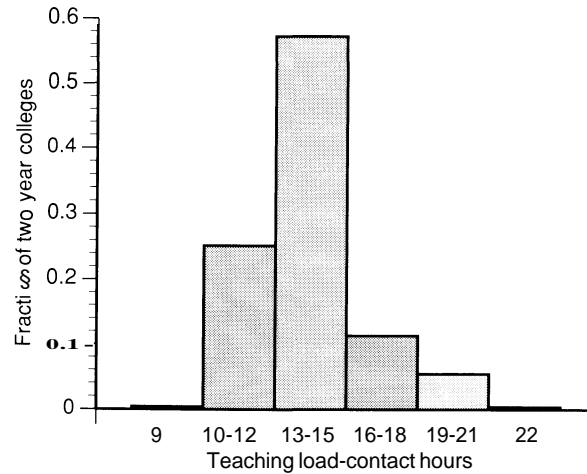
**TABLE TYR.20 Teaching load for full-time faculty members in mathematics programs at two-year colleges: Fall 1990.**

Teaching load-contact hours	9	10-12	13-15	16-18	19-21	22
Percent of two-year schools	0.4%	25.2%	57.3%	11.3%	5.4%	0.4%

\* Full-time average contact hours: 14.7

\* Percent of the full-time faculty who teach extra hours for extra pay: 44%

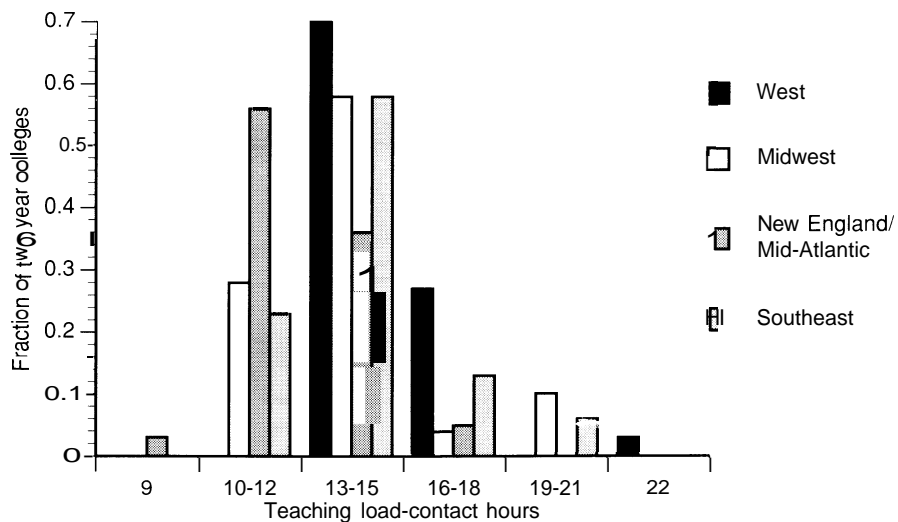
\* Average number of extra hours for extra pay: 4.7



**FIGURE TYR.20.1 Teaching load for full-time faculty members in mathematics programs at two-year colleges: Fall 1990.**

**TABLE TYR.21 Teaching load for full-time faculty members in mathematics programs at two-year colleges by geographic region: Fall 1990.**

	Teaching load-contact hours					
	9	10-12	13-15	16-18	19-21	22
Percent of two-year colleges with teaching load in:						
West	0%	0%	70%	27%	0%	3%
Midwest	0%	28%	58%	4%	10%	0%
New England/Mid-Atlantic	3%	56%	36%	5%	0%	0%
Southeast	0%	23%	58%	13%	6%	0%



**FIGURE TYR.21.1 Teaching load for full-time faculty members in mathematics programs at two-year colleges by geographic region: Fall 1990.**

### Teaching load of part-time faculty

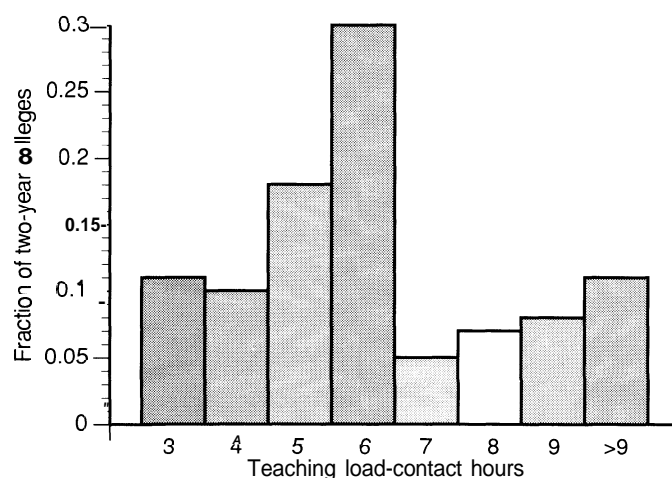
Part-time faculty members in two-year college mathematics programs teach an average of 6.1 hours a week, up from 5.7 hours a week in 1985.

Table TYR.22 shows that a surprising 19% of mathematics programs have their "part-time" instructors teach an average of 9 hours or more.

**TABLE TYR.22 Average weekly teaching load in contact hours for part-time faculty members in mathematics programs at two-year colleges: Fall 1990.**

Teaching load-contact hours	3	4	5	6	7	8	9	>9
Percent of two-year colleges	11%	10%	18%	30%	5%	7%	8%	11%

Part-time average contact hours: 6.1



**FIGURE TYR.22.1 Average weekly teaching load in contact hours for part-time faculty members in mathematics programs at two-year colleges: Fall 1990.**

## Education of Full-Time Two-Year College Mathematics Program Faculty

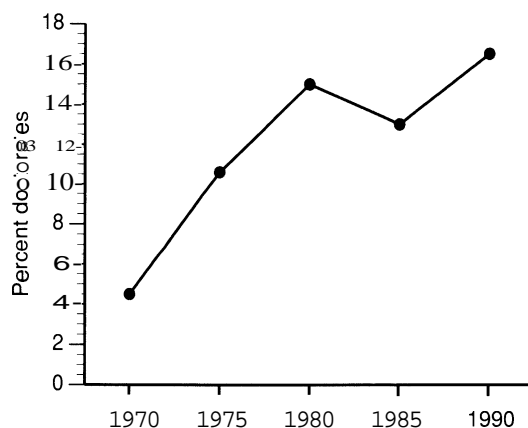
### Percentage with doctorates

Table TYR.23 shows the rise over the years to 16.5% in the percentage of full-time two year college mathematics program faculty with a doctorate. By comparison, 77% of all full-time faculty in four-year college and

university departments of mathematics hold a doctorate (see Table F.7) and 8% of part-time two-year college mathematics program faculty hold a doctorate (see Table TYR.27). The rise in the percentage of doctorates from 1985 to 1990 probably cannot be attributed to new hires, suggesting that many faculty earn their doctorates while on the job, a phenomenon also observed in earlier surveys. Fewer than 2% of new full-time hires in 1989-1990 had doctorates (see Table TYR.37) while 18% of the full-time faculty leaving had doctorates (see Table TYR.39). In the 1985 CBMS survey, about 14% of new hires had doctorates. The lower 1989-1990 figure may reflect a higher demand for PhDs that year in universities and four-year colleges.

**TABLE TYR.23 Percent of doctorates among full-time faculty in mathematics programs at two-year colleges: Fall 1970, 1975, 1980, 1985, 1990.**

	1970	1975	1980	1985	1990
Percent doctorates	4.5%	10.6%	15.0%	13.0%	16.5%



**FIGURE TYR.23.1 Percent of doctorates among full-time faculty in mathematics programs at two-year colleges: Fall 1970, 1975, 1980, 1985, 1990.**

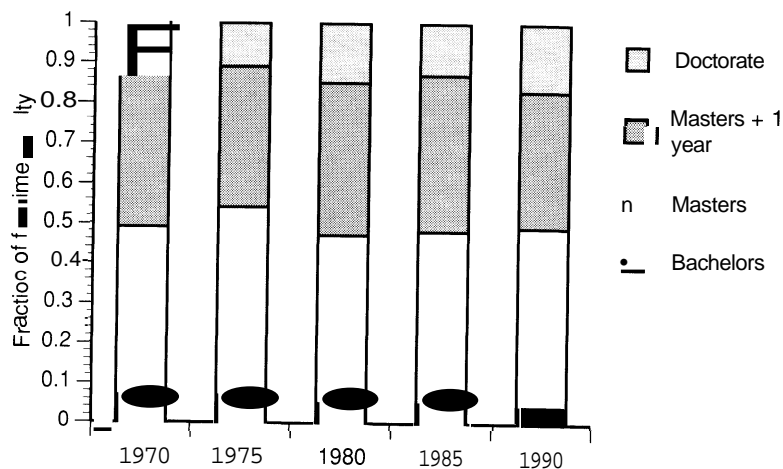
### Highest degree of full-time faculty

The increase from 1970 to 1990 in the percentage of two-year college mathematics program faculty who hold doctorates is balanced by a decrease in the percentage with a master's degree plus one year; Table TYR.24 shows that the percentage with a masters plus one year or a doctorate has remained fairly steady.

The percentage of full-time two-year college mathematics program faculty whose highest degree is a bachelor's degree continues its slow decrease.

**TABLE TYR.24 Highest degree of full-time faculty in mathematics programs at two-year colleges: Fall 1970, 1975, 1980, 1985, 1990.**

Highest Degree	1970	1975	1980	1985	1990
Doctorate	4%	11%	15%	13%	17%
Masters + 1 year	47%	35%	38%	39%	34%
Masters	42%	47%	42%	43%	45%
Bachelors	7%	7%	5%	5%	4%



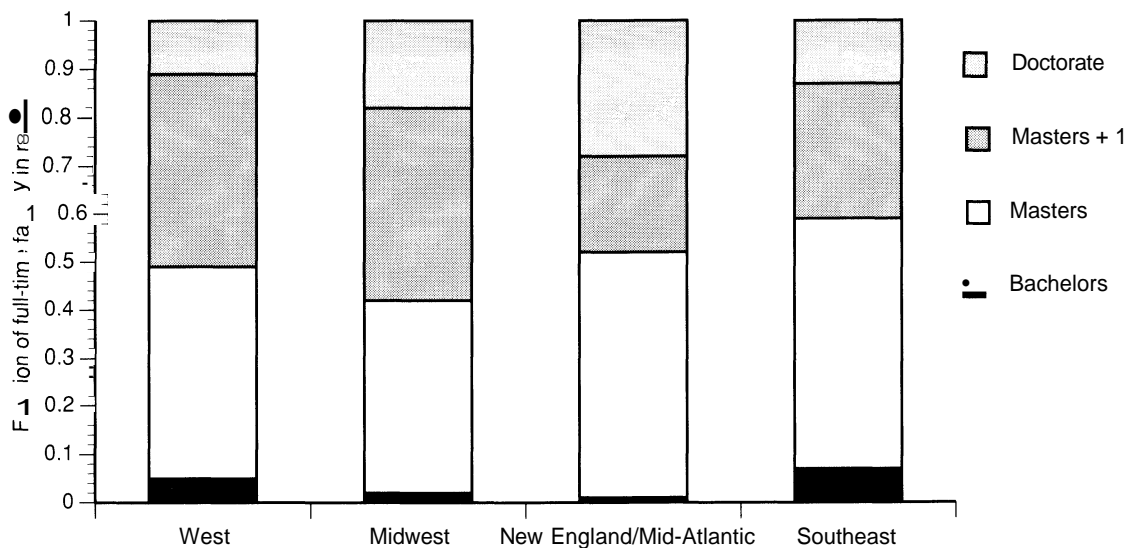
**FIGURE TYR.24.1 Highest degree of full-time faculty in mathematics programs at two-year colleges: Fall 1970, 1975, 1980, 1985, 1990.**

### Highest degree of full-time faculty by geographic region

Table TYR.25 gives the highest degree of full-time mathematics program faculty by geographic region. The percentage of full-time mathematics program faculty with a doctorate is highest in the New England/Mid-Atlantic states, where promotion is based more often on professional activities than in other regions of the country. Teaching loads are also lowest in this region (see Table TYR.21).

**TABLE TYR.25 Highest degree of full-time faculty in mathematics programs at two-year colleges by geographic region of USA: Fall 1990.**

Highest Degree	West	Midwest	New England/ Mid-Atlantic	Southeast
Doctorate	11%	18%	28%	13%
Masters + 1	40%	40%	20%	28%
Masters	44%	40%	51%	52%
Bachelors	5%	2%	1%	7%



**FIGURE TYR.25.1 Highest degree of full-time faculty in mathematics programs at two-year colleges by geographic region of USA: Fall 1990.**

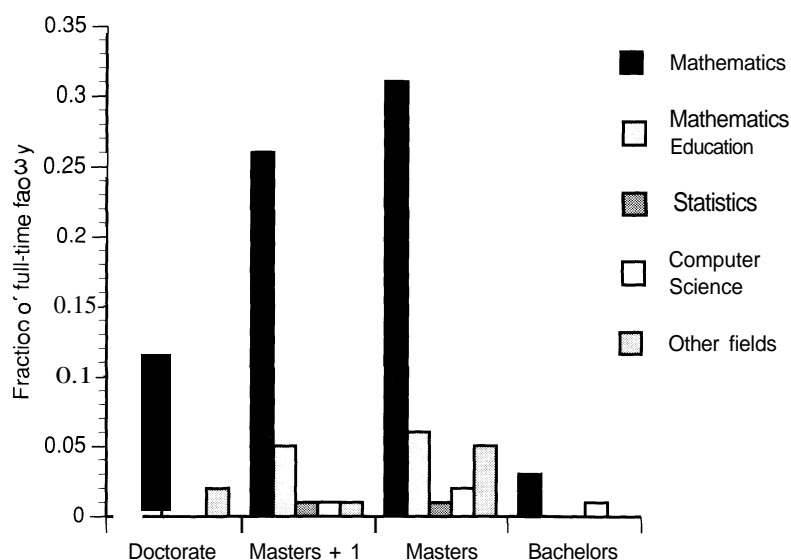
**Field of highest degree of full-time faculty**

The percentage of full-time two-year college mathematics program faculty whose highest degree is in mathematics is up to 68% from 58% in 1985. Otherwise, the matrix of Table TYR.26 is quite similar to that for 1980 and that for 1985.

**TABLE TYR.26 Highest degree of full-time faculty in mathematics programs at two-year colleges by field and level of highest degree: Fall 1990.**

Field	Highest degree				TOTAL
	Doctorate	Masters + 1	Masters	Bachelors	
Mathematics	8%	26%	31%	3%	68%
Mathematics Education	6%	5%	6%	L	17%
Statistics	L	1%	1%	0%	2%
Computer Science	L	1%	2%	1%	4%
Other fields	2%	1%	5%	L	9%
TOTAL	17%	34%	45%	4%	100%

L: Fewer than half of 1 %.



**FIGURE TYR.26.1** Highest degree of full-time faculty in mathematics programs at two-year colleges by field and level of highest degree: Fall 1990.

## Education of Part-Time Two-Year College Mathematics Program Faculty

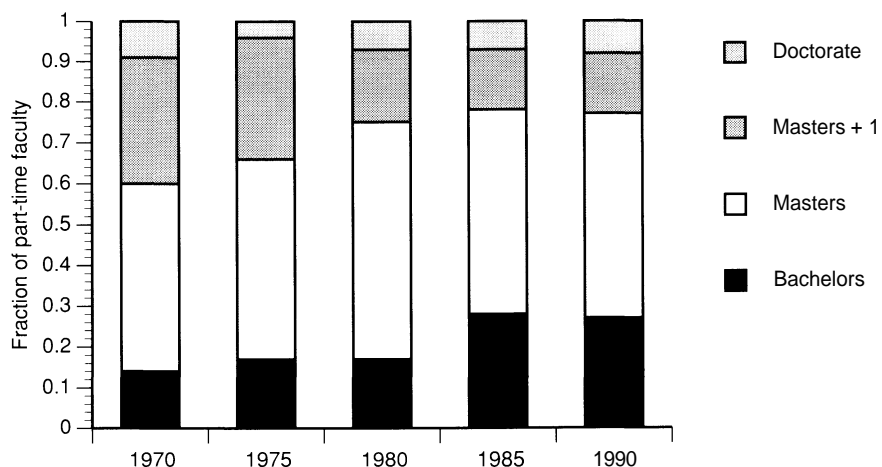
### Highest degree of part-time faculty

The percentage of part-time two-year college mathematics program faculty with either a doctorate or a master's degree plus one year has dropped since 1970 and the percentage with a bachelor's degree has increased. This may, in part, reflect hiring of bachelor's level part-time instructors to teach remedial courses and to staff math labs. A smaller percentage of part-time than full-time two-year college mathematics program faculty hold doctorates or a masters plus one year and a larger percentage hold a bachelor's degree as their highest degree. (Compare Table TYR.27 with Table TYR.24.)

Table TYR.28, which shows the highest degree of part-time faculty by geographic region, bears little resemblance to the parallel Table TYR.25 for full-time faculty.

**TABLE TYR.27** Highest degree of part-time faculty in mathematics programs at two-year colleges: Fall 1970, 1975, 1980, 1985, 1990.

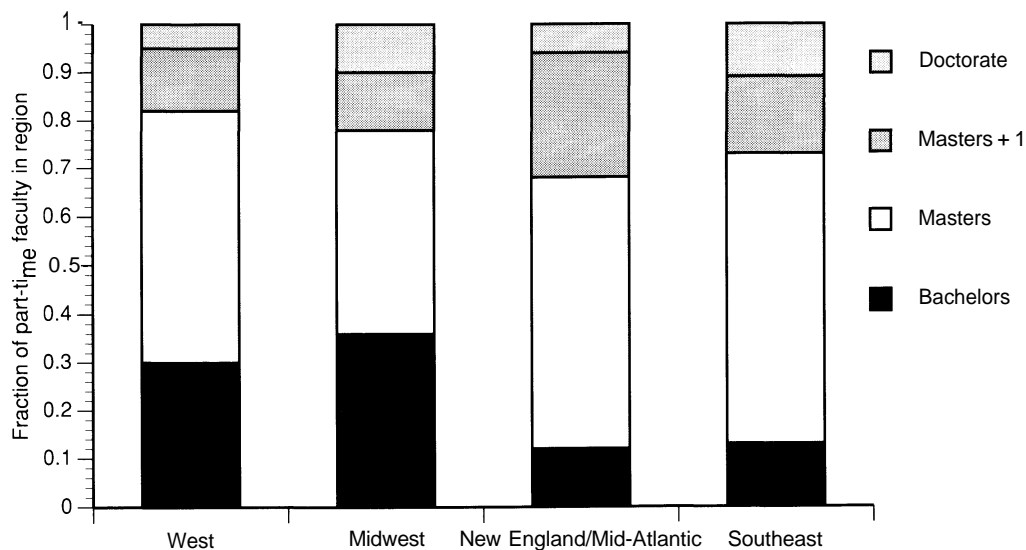
Highest Degree	1970	1975	1980	1985	1990
Doctorate	9%	4%	7%	7%	8%
Masters + 1	31%	30%	18%	15%	15%
Masters	46%	49%	58%	50%	50%
Bachelors	14%	17%	17%	28%	27%



**FIGURE TYR.27.1** Highest degree of part-time faculty in mathematics programs at two-year colleges: Fall 1970, 1975, 1980, 1985, 1990.

**TABLE TYR.28** Highest degree of part-time faculty in mathematics programs at two-year colleges by geographic region in USA: Fall 1990.

Region	West	Midwest	New England/ Mid-Atlantic	Southeast
Doctorate	5%	10%	6%	11%
Masters + 1	13%	12%	26%	16%
Masters	52%	42%	56%	60%
Bachelors	30%	36%	12%	13%



**FIGURE TYR.28.1** Highest degree of part-time faculty in mathematics programs at two-year colleges by geographic region in USA: Fall 1990.

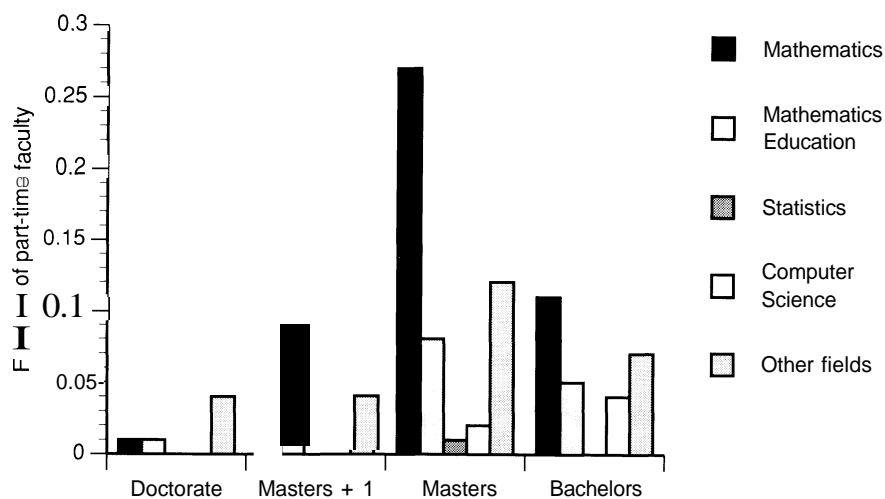
**Field of highest degree of part-time faculty**

The percentage of part-time two-year college mathematics program faculty members whose highest degree is in mathematics is down from 58% in 1985 to 47%. The percentage whose highest degree is in mathematics education is up 2%, in statistics up 1%, in computer science up 2%, and in other fields up 6%. A much smaller percentage of full-time faculty members than part-time faculty members have degrees in fields other than the mathematical sciences. (Compare Table TYR.29 with Table TYR.26 for full-time faculty.)

**TABLE TYR.29 Highest degree of part-time faculty in mathematics programs at two-year colleges by field: Fall 1990.**

Field	Highest degree				TOTAL
	Doctorate	Masters + 1	Masters	Bachelors	
Mathematics	1%	8%	27%	11%	47%
Mathematics Education	1%	3%	8%	5%	17%
Statistics	L	L	1%	L	2%
Computer Science	L	L	2%	4%	7%
Other fields	4%	4%	12%	7%	27%
<b>TOTAL</b>	<b>8%</b>	<b>15%</b>	<b>50%</b>	<b>27%</b>	<b>100%</b>

L: Fewer than half of 1%



**FIGURE TYR.29.1 Highest degree of part-time faculty in mathematics programs at two-year colleges by field: Fall 1990.**

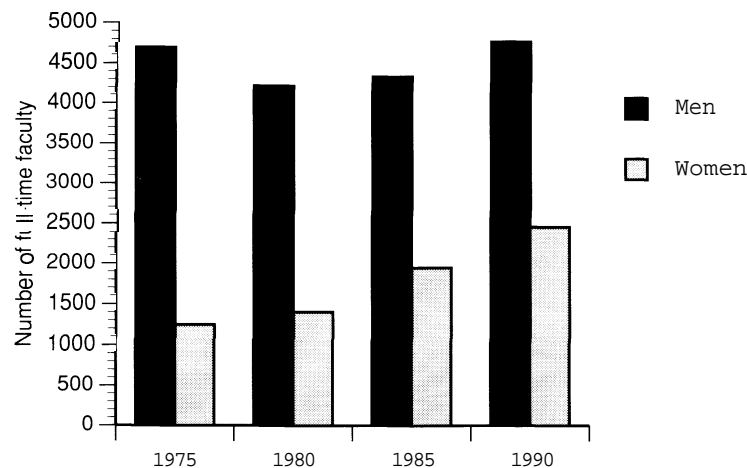
## Gender, Ethnic Composition, and Age of Full-time Two-Year College Mathematics Program Faculty

### Gender of full-time two-year college mathematics program faculty

About 34% of the full-time faculty members in mathematics programs at two-year colleges are women, up from 21% in 1975. In fact, women make up 49% of the full-time mathematics program faculty under the age of 40, a remarkable percentage given that in each of the years from 1970 to 1986, 35% or fewer of the master's degrees awarded in the mathematical sciences went to women [National Research Council, *A Challenge of Numbers: People in the Mathematical Sciences*, National Academy Press, Washington, DC, 1990. Their source: National Center for Education Statistics of the U.S. Department of Education, *Digest of Education Statistics*, 1988, p. 102]. A master's degree is the usual minimum requirement for teaching full-time in a two-year college mathematics program.

**TABLE TYR.30 Number of full-time faculty in mathematics programs at two-year colleges: Fall 1975, 1980, 1985, 1990.**

	1975	1980	1985	1990	% increase 1975-1990
Men	4696	4217	4331	4767	1.5%
Women	1248	1406	1946	2455	96.7%
TOTAL	5944	5623	6277	7222	21.5%



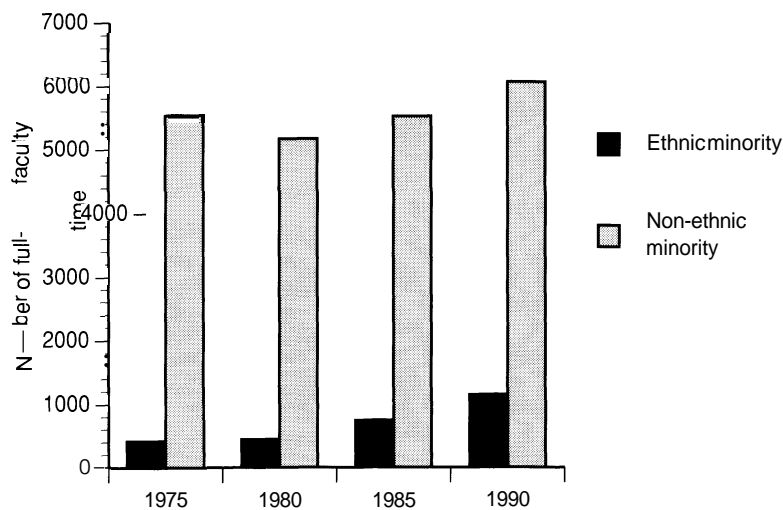
**FIGURE TYR.30.1 Number of male and female full-time faculty members in mathematics programs at two-year colleges: Fall 1975, 1980, 1985, 1990.**

### Number of full-time faculty members who are ethnic minorities

Table TYR.31 shows that ethnic minorities comprise 16% of the full-time two-year college mathematics program faculty members, up from 7% in 1975. Seven percent of the full-time two-year college mathematics program faculty members are Hispanic, 4% are African-American, 4% are Asian/Pacific Islander, and 1% are Native American (see Table TYR.32). Twenty-six percent of the full-time two-year college mathematics program faculty members under the age of 40 are minorities (see Table TYR.33).

**TABLE TYR.31 Number of ethnic minority full-time faculty members in mathematics programs at two-year colleges: Fall 1975, 1980, 1985, 1990.**

	1975	1980	1985	1990
Number of full-time ethnic minority faculty members	416	450	753	1155
% ethnic minorities among full-time faculty members	7%	8%	12%	16%



**FIGURE TYR.31.1 Number of ethnic minority and non-ethnic minority full-time faculty members in mathematics programs at two-year colleges: Fall 1975, 1980, 1985, 1990.**

### Trends in the ethnic composition of full-time faculty

Table TYR.32 shows that the increase in the percentage of Hispanics is the largest of any ethnic group. Hispanics now comprise 7% of the full-time mathematics program faculty.

**TABLE TYR.32 Ethnic group distribution of full-time faculty in mathematics programs at two-year colleges: Fall 1980, 1985, 1990.**

Ethnic group	Percent of total full-time faculty		
	1980	1985	1990
Non-Hispanic White	92%	88%	84%
Asian	3%	3%	4%
Hispanic	1%	4%	7%
Black	3%	4%	4%
Native American	1%	1%	1%

### **Ethnic composition of full-time faculty and full-time faculty under age 40**

Table TYR.33 compares the percentage of full-time two-year college mathematics program faculty and the percentage of full-time faculty under age 40 for various ethnic groups with the percentage of master's degrees in the mathematical sciences awarded to U.S. citizens in that group. A master's degree is the usual minimum requirement for teaching full-time in a two-year college mathematics program.

**TABLE TYR.33 Ethnic group distribution of full-time faculty and of full-time faculty under age 40 in mathematics programs at two-year colleges (Fall 1990) and percent of master's degrees in mathematical sciences awarded (1985).**

Ethnic Group	Percent of faculty	Percent of faculty under age 40	Percent of U.S. master's degrees *
Non-Hispanic white	84%	74%	87%
Asian/Pacific Islander	4%	6%	8%
Hispanic	7%	12%	2%
Black	4%	8%	2%
Native American	1%	L	L

L: Fewer than half of 1%

\* Includes U.S. citizens only. [Source: National Research Council, A Challenge of Numbers: People in the Mathematical Sciences, National Academy Press, Washington, DC, 1990 p.47. Their source: National Center for Education Statistics of the U.S. Department of Education, unpublished data.]

### Age distribution of full-time two-year college mathematics program faculty

The average age of two-year college mathematics program faculty is up to 45.4 years, about the same as the faculty in four-year college and university mathematics and statistics departments. The percentage under age 40 slid from 47% in 1975 to 23% in 1990. Table TYR.34 shows the trends in age since 1975. The diagonal arrows indicate the translation of an age group to the corresponding five-year-older group five years later. Clearly, hiring occurs at least up to age 50.

**TABLE TYR.34 Age distribution of full-time faculty members in mathematics programs at two-year colleges: Fall 1975, 1980, 1985, 1990.**

Age range	Percent of full-time faculty				Number of full-time faculty				Change: 1985-1990
	1975	1980	1985	1990	1975	1980	1985	1990	
<30	9%	5%	5%	5%	535	281	314	361	361
30-34	18%	15%	11%	8%	1070	843	690	578	264
35-39	20%	24%	18%	10%	1188	1350	1130	722	32
40-44	15%	18%	24%	21%	892	1012	1506	1517	387
45-49	13%	16%	18%	22%	773	900	1130	1589	83
50-54	13%	10%	13%	21%	773	562	816	1517	387
55-59	8%	7%	7%	8%	475	394	439	578	-238
>59	4%	5%	4%	5%	238	281	252	360	-79
TOTAL					5944	5623	6277	7222	

### Age distribution of full-time two-year college mathematics program faculty members by gender

Women are more heavily represented in the younger age groups, as might be expected by the recent increase in the percentage of women faculty (see Table TYR.35).

**TABLE TYR.35 Percent breakdown of full-time faculty in mathematics programs at two-year colleges by age class and sex; also percent female in each age class and overall: Fall 1990.**

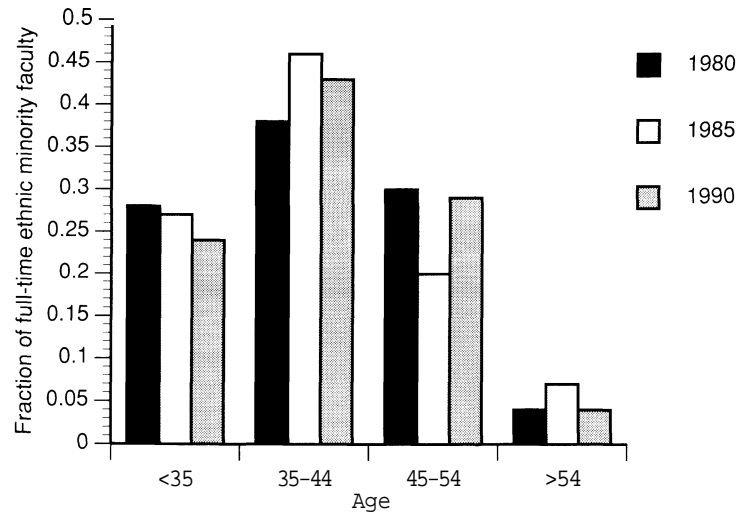
Age class	Percent of all full-time faculty		Percent female by age class
	Female	Male	
< 35	7.0%	6.7%	51.1%
35-44	13.7%	18.6%	42.4%
45-54	10.3%	29.9%	25.6%
> 54	3.2%	10.6%	23.2%
OVERALL	34.2%	65.8%	34.2%

**Age distribution of full-time two-year college mathematics program faculty members by ethnicity**

The age distribution of Asian, Hispanic, African-American, and Native American full-time faculty members in mathematics programs at two-year colleges is shown in Table TYR.36. As with women, they are younger than the faculty as a whole.

**TABLE TYR.36 Age distribution of ethnic minority full-time faculty members in mathematics programs at two-year colleges: Fall 1980, 1985, 1990.**

Age range	1980	1985	1990
<35	28%	27%	24%
35-44	38%	46%	43%
45-54	30%	20%	29%
>54	4%	7%	4%



**FIGURE TYR.36.1 Age distribution of ethnic minority full-time faculty members in mathematics programs at two-year colleges: Fall 1980, 1985, 1990.**

## Sources and Destinations of Mathematics Program Faculty in Two-Year Colleges, 1990

### Sources of new full-time faculty

More than 700 people were newly hired for full-time teaching (both permanent and temporary) in mathematics programs at two-year colleges in 1990. The main route into full-time two-year college mathematics program teaching is having taught some time previously in that program, accounting for 47% of these new hires.

Table TYR.37 shows where the faculty members newly hired in 1990 spent the previous year (1989-1990). Sixty-two percent were teaching and 29% were in graduate school. Note that fewer than 2% of the new hires had a doctorate.

With the climb in remediation from 33% of the total mathematics program enrollment in 1970 to 52% in 1990 has come a major change in the teaching environment of two-year college mathematics program faculty. One result is that fewer secondary school mathematics teachers now move to two-year colleges in order to teach higher level mathematics.

**TABLE TYR.37 Source of new full-time faculty for mathematics programs at two-year colleges: 1989-1990.**

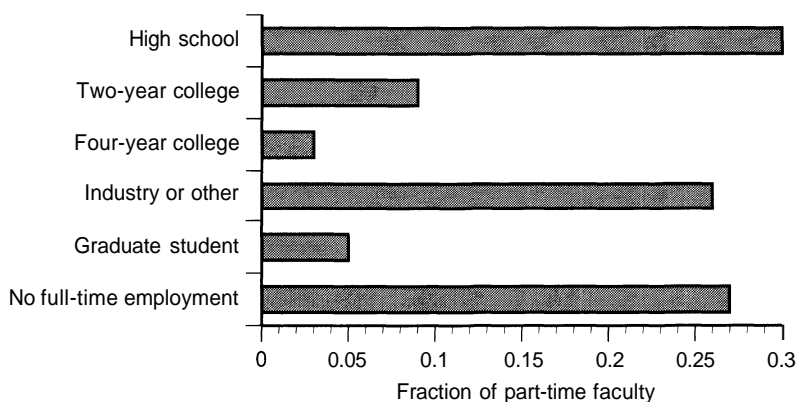
Source	Doctorate			Masters/Bachelors	TOTAL
	Math	Math Ed	Other		
Graduate school	0	0	4	208	212
Employed by same 2-yr college in part-time capacity	0	0	0	195	195
Teaching in another 2-year college	0	4	0	73	77
Teaching in a secondary school	0	0	0	64	64
Non-academic employment	0	0	0	56	56
Teaching in a 4-year college or university	4	0	0	117	121
Otherwise occupied or unknown	0	0	0	6	6
TOTAL	4	4	4	719	731

### Other employment of part-time faculty

Seventy-three percent of part-time mathematics program faculty members either have full-time employment elsewhere or are graduate students. Table TYR.38 gives the breakdown of places of full-time employment for these part-time faculty members.

**TABLE TYR.38 Other employment of part-time faculty in two-year college mathematics programs: Fall 1990.**

Other employment of part-time faculty	Percent of part-time faculty
Employed full-time in:	
a high school	30%
a two-year college	9%
a four-year college	3%
industry or other	26%
Graduate student	5%
No full-time employment	27%



**FIGURE TYR.38.1 Other employment of part-time faculty in mathematics programs at two-year colleges: Fall 1990.**

### Destinations of full-time mathematics program faculty

In 1984-1985, 52% of the full-time mathematics program faculty who left two-year college teaching either died or retired. The number of deaths/retirements in 1984-1985 was unusually large. Table TYR.39 shows that in 1989-1990, only 33% left two-year college teaching because of death or retirement.

From Table TYR.34 we see that faculty members begin to leave in fairly large percentages between ages 50-54 and ages 55-59.

### Professional Activities of Two-Year College Mathematics Program Faculty

Table TYR.40 shows that the percentages of the full-time mathematics program faculty who participate in selected professional activities, as estimated by their department heads, are generally down from 1985.

**TABLE TYR.39 Outflow of full-time faculty from mathematics programs at two-year colleges: 1989-1990.**

Source	Doctorate			Masters/Bachelors	TOTAL
	Math	Math Ed	Other		
Died or retired	0	4	4	76	84
Teaching in a 4-year college or university	0	28	0	44	72
Teaching in a secondary school	0	0	0	0	0
Non-academic employment	0	0	0	53	53
Teaching in a 2-year college	0	0	6	54	60
Otherwise occupied or unknown	0	16	0	24	40
Returned to graduate school	0	0	0	8	8
TOTAL	0	48	10	259	317

**TABLE TYR.40 Professional activity of full-time faculty in mathematics programs at two-year colleges: Fall 1990.**

Activity	1975	1980	1985	1990
Attending at least one professional meeting per year	47%	59%	70%	67%
Taking additional math or computer science courses during the year	21%	22%	31%	15%
Attending mini-courses or short courses	na	na	31%	27%
Giving talks at professional meetings	9%	15%	16%	15%
Regular reading of articles in professional journals	47%	57%	72%	57%
Writing of expository and/or popular articles	5%	6%	6%	5%
Publishing research articles	na	na	3%	4%
Writing textbooks	15%	10%	4%	6%

## Problems of the '90s

Department heads were asked to classify each of the problems in Table TYR.41 as "minor or no problem," "somewhat of a problem," or "major problem." Remediation was the only problem classified as "major" by a majority of mathematics program heads.

**TABLE TYR.41 Problems in the teaching environment of mathematics programs at two-year colleges: Fall 1990.**

Problem	Rank		Percent classifying problem as major	
	1985	1990	1985	1990
Remediation	2	1	60%	65%
Salary levels/patterns	3	2	53%	47%
The need to use temporary faculty for instruction	1	3	61%	42%
Student motivation	-	4	na	38%
Computer facilities for classroom use	4	5	50%	28%
Departmental support (travel funds, staff, secretary, etc)	5	6	41%	26%
Maintaining vitality of faculty	6	7	39%	22%
Advancing age of tenured faculty	11	7	25%	22%
Classroom/lab facilities	13	9	21%	18%
Office/lab facilities	15	10	19%	16%
Upgrading/maintaining computer facilities	8	11	30%	15%
Lack of curricular flexibility due to transfer requirements	-	12	na	10%
Class size	9	13	27%	10%
Coordinating math courses with secondary schools	15	14	19%	9%
Staffing computer science courses	7	15	34%	8%
Computer facilities for faculty use	9	16	27%	7%
Coordinating math courses for four-year colleges and universities	12	17	22%	6%
Lack of experienced senior faculty	17	18	7%	2%
Library: holdings, access, etc	17	19	7%	1%
Coordinating and/or developing math with vocational/technical programs	14	19	20%	1%
Losing full-time faculty to industry/government	17	21	7%	0%

Table TYR.41 compares the percentage of mathematics program heads who classify the given problem as "major" in 1990 with the percentage who rated the problem a "5" or a "6" on a six point scale in 1985. The rankings have not changed much. The drop in the percentage of mathematics program heads who classify "the need to use temporary faculty for instruction" as a major problem is surprising in light of the 79% increase in the number of part-time faculty members since 1985 (see Table TYR.17). Perhaps the mathematics program heads no longer consider part-time instructors "temporary."

## Administration of Mathematics Programs in Two-Year Colleges

### Academic calendar

The most common academic calendar for two-year college mathematics programs is the semester system.

**TABLE TYR.42 Academic calendars in two-year college mathematics programs: Fall 1990.**

Academic calendar	Percent of two-year college mathematics programs
Semester	84%
Trimester	2%
Quarter	14%
4-1-4	0%
Other	0%

### Administrative structure of two-year college mathematics programs

During the 1980s, there was a trend toward reorganizing the two-year college administrative structure so that the mathematics program was administered by a mathematics and science division head rather than by a mathematics or mathematics/computer science department chair. The percentage of two-year college mathematics programs administered under various structures in 1990 can be found in Table TYR.43.

**TABLE TYR.43 Administrative structure of two-year college mathematics programs: Fall 1990.**

Administrative structure	Percent of two-year college mathematics programs
Mathematics department	36%
Mathematics and computer science department	8%
Mathematics and science division or department	40%
No department structure	3%
Other (mostly department or division with mathematics and other disciplines)	13%

**Term of department heads in two-year college mathematics programs**

The department heads who filled out this survey have been in their positions for an average of almost 8 years. The position of department head rotates among faculty members in about 28% of two-year college mathematics programs, with two or three years being the typical length of a term.

